NETWORK WORLD
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Oracle preps distributed DBMS pack

By Timothy O'Brien
West Coast Bureau Chief

REDWOOD SHORES, Calif. — Oracle Corp. is readying for the long-awaited introduction of an enhanced version of its relational DBMS that offers broad new distributed data management capabilities.

Previous versions of the database management system have supported data sharing across a net. But internal sources at Oracle last week detailed major improvements slated for Version 7 in the areas of performance, data integrity, query optimization and security that provide true distributed database capabilities.

Company officials said privately that the unveiling of the heralded Version 7 had been pegged for April 27, but acknowledged the announcement could slip to June. Analysts said the product will bring Oracle in line with competitors such as Sybase, Inc. and Ingres Corp., an ASK company.

"Oracle has been behind its competitors and needs this release to keep up and deliver on

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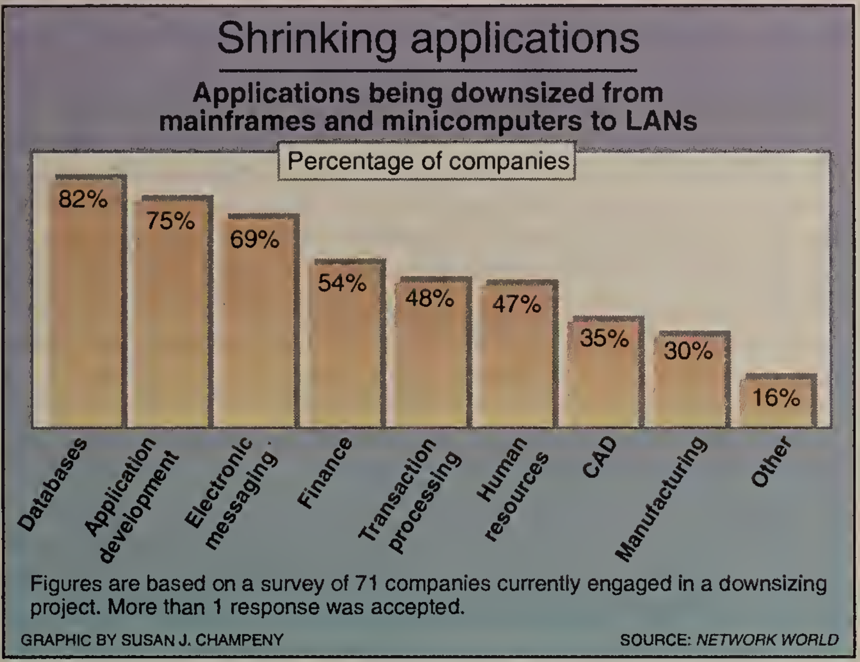

Shrinking applications

Applications being downsized from mainframes and minicomputers to LANs

Figures are based on a survey of 71 companies currently engaged in a downsizing project. More than 1 response was accepted.

GRAPHIC BY SUSAN J. CHAMPENEY SOURCE: *NETWORK WORLD*

Survey: Downsizing taking root in corporate America

By Wayne Eckerson
Senior Editor

A survey conducted by *Network World* shows the pervasiveness of downsizing in U.S. businesses and illustrates a dramatic shift in corporate application strategies.

Almost half the companies surveyed have downsized mainframe- or minicomputer-based applications to local-area networks during the past five years, and nearly two-thirds are currently downsizing applications.

Only 3% said their firm has no plans to downsize now or in the future (see Figure 1, page 43).

The survey, based on in-depth telephone interviews with 100 readers from a cross section of industries, indicates that companies once entrenched in the large-systems world are moving a significant portion of information processing, including core business applications, to LANs.

Survey respondents spent an average of $3.54 million annually on network equipment and services as well as controlled spend-

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Apple lays out net future of System 7

Demos Open Collaboration Environment Toolbox, details new multiprotocol network architecture.

By Margie Wylie
Senior Editor

NAPA, Calif. — In a moment of uncharacteristic candor, Apple Computer, Inc. last week discussed systems-level network services the company will roll out as modular extensions to its System 7 Macintosh operating system over the coming months and years.

At a briefing here, Apple officials revealed new details on the company's Open Collaboration Environment (OCE) Toolbox and demonstrated it for the first time. They also laid the theoretical groundwork for a new multiprotocol network architecture called the Enterprise Toolbox.

OCE is intended to prompt development of a new class of applications that can collaborate with one another across a network ("Apple architecture to spur cooperation," *NW*, Nov. 25, 1991).

The Enterprise Toolbox will enable Macintoshes to run several different protocol stacks simultaneously, a trick that will be necessary for program collaboration and for the Macintosh to gain widespread acceptance in large heterogeneous nets, said Dan Torres, Apple's networking product manager.

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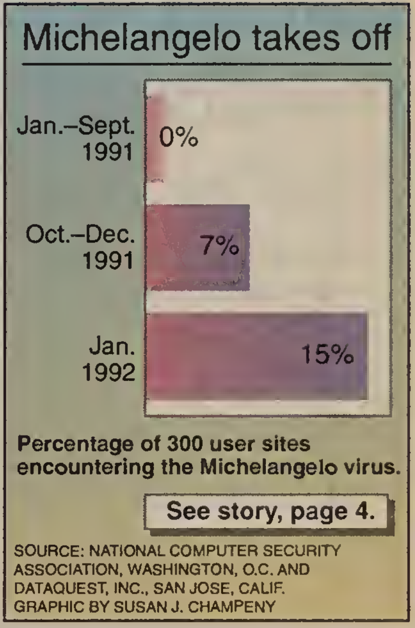

Michelangelo takes off

Percentage of 300 user sites encountering the Michelangelo virus.

See story, page 4.

SOURCE: NATIONAL COMPUTER SECURITY ASSOCIATION, WASHINGTON, O.C. AND DATAQUEST, INC., SAN JOSE, CALIF.
GRAPHIC BY SUSAN J. CHAMPENEY

NETLINE

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CARRIERS WON'T LIVE UP to FCC expectations on 800-number portability. Page 3.

NEW VERSION OF IBM'S CICS masks complexities behind building distributed applications. Page 4.

CROSSCOMM TO INTRO new versions of router based on revamped architecture with enhanced SNA support. Page 4.

UNIX VERSION of DECmcc Director network management system will finally be unveiled next month. Page 4.

WELLFLEET TO UNVEIL new software that enhances net security and enables users to conserve bandwidth. Page 4.

CA READIES NEW TOOLS for downsizing applications to LANs. Page 6.

NEWSPAPER

FEATURE

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Market flux forces users to rethink int'l hub sites

By Barton Crockett
Senior Editor

Once a fairly easy task, site selection for international network hubs is becoming increasingly muddled by a myriad of changing factors that stand to redefine the global private network landscape.

Regulatory reforms, the increased presence of digital facilities in carriers' nets and flexible pricing are combining to offer network managers hubbing options they might never have considered previously.

And so many countries are vying to serve as global hub sites that most are willing to offer incentives to attract the lucrative business — something that seldom occurred just a few years back.

"The bottom line is that you should negotiate [with several foreign carriers when choosing an international hub site] because you can get all sorts of freebies thrown at you," says Ken Zita, a consultant with New York-based Network Dynamics.

At one time, the process of choosing a site for an interna-

(continued on page 31)

NetWare 3.2 to boast new audit options

By Caryn Gillooly
Senior Editor

PROVO, Utah — Novell, Inc.'s NetWare 3.2 will include sorely needed auditing features that should be a boon for commercial users and will help NetWare meet government security standards.

According to internal Novell documents and sources close to the company, Novell will adopt a four-pronged approach to add more advanced auditing capabilities to NetWare 3.2, which is expected to be released late this year. The features promise to improve security and aid users in such tasks as troubleshooting and gathering network usage statistics.

The strategy calls for new auditing capabilities to be built into

(continued on page 6)

Int'l decisions reached on allocating radio spectrum

U.S. gains needed LEOS network concessions, while Europeans celebrate PCN spectrum plan.

By Jack Messmer
Special to Network World

MALAGA-TORREMOLINOS, Spain — The month-long World Administrative Radio Conference (WARC) '92 ended here last week with an international decision to allocate radio spectrum for a host of new communications technologies.

Spectrum allocations for personal communications network (PCN) services and two types of low-earth orbit satellite (LEOS) networks resulted from lengthy meetings and spectrum horse-trading among WARC delegates from 127 nations. The U.S. and Europe, which had battled over the crowded spectrum, both achieved their key objectives through compromise.

Jan Baran, head of the U.S. delegation and a partner in the Washington, D.C. law firm Wiley, Rein and Fielding, said WARC represented a global victory that would bring new radio-based technologies to every nation. The WARC decisions must now be translated into national laws and regulations. By signing the WARC treaty, each country agreed to prevent radio interference to WARC-designated services.

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IBM set to announce new mainframe APPN software

Also will license key APPN network node spec.

By Bob Brown, Jim Duffy
and Joanne Cummings
Network World Staff

NEW YORK — IBM is set to unveil later this month the long-awaited mainframe version of its APPN software along with details on how it will deliver its APPN network node specification to other vendors, *Network World* has learned.

Analysts said IBM is also expected to discuss a timetable for support of Advanced Peer-to-Peer Networking on its recently announced Systems Network Architecture-ready router, the 6611 Network Processor, although no further details were available last week.

The new APPN offerings and licensing agreements, which IBM previewed at ComNet earlier this year, will serve to further flatten the hierarchical structure of IBM's SNA. APPN drastically reduces manual configuration requirements in an SNA net and supports a routing scheme that allows data to be sent directly between nodes without passing through a mainframe.

An IBM spokeswoman confirmed that the company will soon detail its APPN products and

(continued on page 46)

AT&T ready to announce its pan-European net plans

By Ellen Messmer
and Bob Wallace
Network World Staff

HANNOVER, Germany — AT&T this week is expected to announce at Hannover Fair CeBIT its plans to build a pan-European 2M bit/sec data net with nodes in 17 countries, the carrier's first major step to become a private network provider in Europe.

EuroNet will be built using a combination of lines that are owned by AT&T or leased from European post, telegraph and telephone administrations, according to sources.

AT&T will operate the network in conjunction with London-based value-added service provider AT&T Istel. In 1989, AT&T acquired Istel, which provides packet-switched, point-of-sale and electronic data interchange services in the U.K.

The trans-European net will consist of Bolt Baranek and Newman, Inc. X.25 packet switches and Network Equipment Technologies, Inc. E-1 multiplexers in all the 17 European countries.

AT&T will reportedly install nodes in each country and link them with lines that would enable the carrier to provide users with a

(continued on page 44)

Briefs

Lotus to embrace multimedia. Lotus Development Corp. this week will announce its strategy for supporting multimedia capabilities in a variety of products, including its Notes groupware, said Steve Barlow, multimedia product manager at Lotus. Analysts said Lotus will release products in six to nine months that will enable Notes users to create compound documents that include images, text and voice and can be transported using Notes' electronic mail capability.

Telco plans ATM trial. Southwestern Bell Telephone Co. last week announced plans to trial in St. Louis beginning in the third quarter an Asynchronous Transfer Mode (ATM) switch used to provide frame relay, Switched Multimegabit Data Service and broadband Integrated Services Digital Network services. Southwestern Bell will use Fujitsu Network Switching of America's FETEX-150 ATM switch to provide switched services ranging in speed from 64K to 622M bit/sec. ; Applications supported will include local-area network interconnection, imaging, remote computer access and videoconferencing.

New York buddy system. New York City's Department of Telecommunications and Energy last week announced an agreement under which 13 carriers have pledged to provide backup services for one another during net outages. Participants include AT&T, MCI Telecommunications Corp., Metropolitan Fiber Systems of New York, Inc., New Jersey Bell Telephone Co., New York Telephone Co., RCI Network Services, Inc., Sprint Corp., Teleport Communications Group and Wiltel.

Vendors ready token-ring technology proposal. Star-Tek, Inc., backed by Bytex Corp., Proteon, Inc. and Ungermann-Bass, Inc., this week will propose to the IEEE 802.5 Committee a technology for consideration as a standard that supports 16M bit/sec token-ring networks over unshielded twisted-pair wire. Star-Tek's Phase Lock Loop technology proposal is an alternative to the tank circuit approach recently submitted by IBM and SynOptics Communications, Inc.

Coral: The wait is over. Coral Network Corp. will begin shipping its long-awaited Broadband Network Switch by March 15. The switching device, originally scheduled to ship in the first half of 1991, is late due to a series of technical and financial obstacles. The first version of the switch will support Fiber Distributed Data Interface and Ethernet nets, the Simple Network Management Protocol, spanning tree bridging and Internet Protocol routing.

AT&T to automate operator service. AT&T last week announced plans to replace operators at 31 service centers nationwide — more than 25% of its U.S. operator locations — with voice recognition systems developed by AT&T Bell Laboratories. The systems will ask callers what type of calls they wish to make, such as collect or calling card. If it does not understand the caller, it will put him in touch with an operator.

ATM spec delayed. The ATM Forum, a consortium of vendors promoting Asynchronous Transfer Mode as a common transport technology for local-, metropolitan- and wide-area networks, last week said its common user interface specification will be delayed by two months due to the onslaught of new vendors that have joined the group. The spec will now debut in May. More than 40 vendors have joined the forum since it was founded last fall.

CONTACTS

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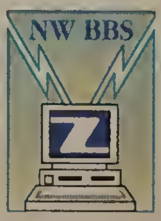

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Bells, GTE doubtful they can meet 800-number portability deadline

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Implementation plans filed by the seven regional Bell holding companies and GTE Telephone Co. last week revealed that the road to 800-number portability may be bumpy and longer than expected.

According to information contained in a joint filing, none of the RBHCs nor GTE Telephone Co. will hit the schedule and network performance requirements laid out by the Federal Communications Commission for 800-number portability. The FCC has mandated that carriers have the appropriate technology in place to support 800-number portability by March 1993.

Portability of 800 numbers will allow customers to retain their number if they switch carriers. The technology will also lead to such advanced services as the ability to have 800 traffic routed to different carriers during various periods of the day in order to take advantage of certain rates.

Although it seems clear that 800-number portability will become available more slowly than the FCC desires, the question is how much slower. In their joint filing, the carriers conceded that 800-number portability will require the efforts of many parties — local carriers, long-distance carriers, vendors and users — and hinted that there could be additional snags.

"Delay or lack of cooperation by one carrier could jeopardize this schedule and threaten to delay the benefits of [800] database access, not only for that carrier's customers, but for others, as well," the carriers stated in the filing.

The FCC's March 1993 deadline is about two years before the local carriers' own target dates for implementing portable 800-number technology. Many of the carriers claim that it will either cost too much or be logistically impossible to speed things up that much.

Besides causing users frustration, delaying 800-number portability could also impact AT&T's Tariff 12 and contract deals. The FCC has banned the inclusion of 800 services in those deals until those numbers are portable and existing Tariff 12 deals are frozen, prohibiting changes.

Although the FCC may backpedal and allow some changes to Tariff 12 deals, it is likely that at least some restrictions will remain until 800 numbers are portable.

In addition to projecting that it will take longer to install the necessary technology than required by the FCC schedule, BellSouth Corp. and Nynex Corp. last week also formally asked the agency for waivers that would allow them to proceed at their own pace. Pacific Telesis Group made a similar request in January, and, in the joint filing last week, Ameritech indicated it will also seek a waiver.

Although Southwestern Bell Corp. has not requested a waiver, it has asked a court to review the FCC's authority to order implementation of technology to support

(continued on page 43)

FCC, carriers clash on 800 portability

Traffic percentage to meet requirements▼

FCC plan	
1993	97
1995	100
Ameritech	
1993	74
1995	96
Bell Atlantic Corp.	
1993	85
1995	100
BellSouth Corp.	
1993	93
1995	98
GTE Telephone Co.	
1993	90
1995	100
Nynex Corp.	
1993	92
1995	98
Pacific Telesis Group	
1993	84
1995	98
Southwestern Bell Corp.	
1993	72
1995	95
US West, Inc.	
1993	64
1995	Not available

According to 800-number portability plans submitted to the FCC, all carriers plan to meet or exceed a postdial delay of no more than 5 seconds and a 2.5-second or less mean delay, but none plan to do so for 100% of their 800 traffic by 1995, as the FCC requires.

SOURCE: RBHC AND GTE IMPLEMENTATION PLANS
GRAPHIC BY SUSAN J. CHAMPENEY

THE INTELLIGENT HUB MARKET IS FULL OF INFLATED CLAIMS.

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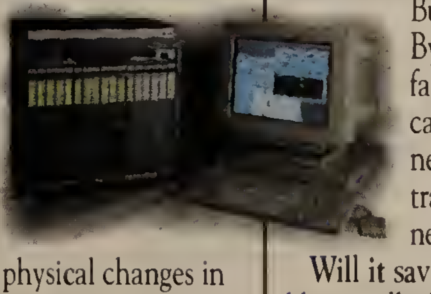
Can it really manage your network? Most intelligent hubs don't manage anything. They just show you pretty pictures. Fact: The Bytex Series 7700™ Intelligent Switching System* uses switching technology to make physical changes in the network. Make a network change on your Bytex screen, and the network actually changes.



Does it eliminate work? Other hubs make you run to the wiring closet and patch in reconfigurations by hand. Fact: The 7700 hubs do that work for you. And we can demonstrate it. Ask other vendors what they can demonstrate.

Does it improve network availability? Some hubs have redundant components. But that isn't enough. Fact: Bytex hubs help you build a fault-tolerant network. They can switch to backup components automatically and transparently for continuous network operation.

Will it save you money? Hub vendors like to talk about low cost. Fact: With its switching technology, the 7700 reduces downtime, offloads staff and improves network uptime. On a large network, that could save you a fortune.

Don't be fooled by puffed-up claims. Get the facts today. Call or write for our free booklet, **"An Intelligent Comparison of Hubs."** Because if it's not a Switching Hub, it's not really intelligent.

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Circle Reader Service #103

New CICS version targets distributed applications

IBM tool helps forge program-to-program links.

By Barton Crockett
Senior Editor

WHITE PLAINS, N.Y. — IBM last week announced a new version of CICS/ESA with features that make it easier to build distributed applications in a Systems Network Architecture net.

Version 3 Release 3 of IBM's flagship teleprocessing monitor contains a new Distributed Program Link (DPL) that automatically establishes links between CICS applications on separate devices, such as mainframes, OS/2 personal computers and, eventually, Application System/400 minicomputers and AIX machines.

Today, users must customize applications to distribute processing between multiple CICS platforms. CICS/ESA Version 3 Release 3 would treat distributed applications as if they were running on the same mainframe, minimizing the need for customization, according to Dennis Kast, a CICS product administrator for IBM.

"[DPL] is a cleaner way of distributing processing between CICS [platforms]," said Gerard Weis, senior vice-president for networking and technology services at Sears Technology Services, Inc. (STS) in Schaumburg, Ill.

Weis said STS plans to upgrade its CICS applications to support DPL over the next few years.

IBM introduced DPL in an OS/2 version of CICS released two years ago, said Morris Sparks, an IBM CICS product administrator. It lets CICS applications on OS/2 machines communicate across local-area networks and access mainframe-based

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Users thwart latest virus, look ahead

By Joanne Cummings and Salvatore Salamone
Network World Staff

Due to runaway publicity and heightened user vigilance, the Michelangelo computer virus set to trigger last Friday came and went with little fanfare.

Several users contacted by *Network World* — including BayBanks, Inc., Harvard University, the Army's Fort Eustis in Virginia and Drexel Burnham Lambert, Inc. — found that a few of their microcomputers had been infected by the virus but were able to detect and eradicate it earlier in the week before it caused any damage.

"We caught it [on two machines Thursday] using virus scanning software," said Steve Ritter, a spokesman for Drexel Burnham in New York. "After that, it was pretty quiet."

Although early reports indicate the virus did little damage, this particular strain caused a stir because it spread so rapidly. A study conducted by the National Computer Security Association (NCSA) and Dataquest, Inc. found that Michelangelo was practically nonexistent last year, while in January 15% of 300 user sites surveyed had encountered the virus (see graphic, page 1).

> "The virus problem is getting too big to handle with scanning alone," Bales said.
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The NCSA is an independent Washington, D.C.-based group that evaluates products and conducts research on security, virus and data integrity problems.

The perceived threat of Michelangelo caused antivirus software sales to skyrocket. Moreover, organizations that offer advice on how to fight viruses were swamped with telephone calls. The NCSA, which typically gets a dozen calls a day, received more than 3,000 calls in the days preceding March 6.

Don't rest easy

NCSA executives and other analysts noted, however, that the success in battling Michelangelo should not give network managers a false sense of security.

Instead, net managers should interpret the experience as a warning that the virus problem is getting out of hand. With new viruses being written on the average of three to five per day, trying to safeguard local-area networks with scanning software does not seem to be the answer.

Michelangelo's evasion of detection and its rapid infection rate point to the heart of the problem.

"The virus problem is getting too big to handle with scanning alone," said Robert Bales, executive director of the NCSA.

"A better approach to the problem is to include virus pro-

(continued on page 44)

DEC preps new version of net mgmt. system for Unix

By Jim Duffy
Senior Editor

MAYNARD, Mass. — Digital Equipment Corp. is expected to unveil next month a new version of its DEC Management Control Center (DECmcc) Director network management system that runs on Unix processors and features expanded TCP/IP net management capabilities.

Version 1.2 of DECmcc Director will run on DEC Ultrix and Open Software Foundation, Inc.'s (OSF) OSF/1 platforms, as well as on DEC's proprietary VMS operating system. It will perform best on Unix systems because it will be able to take advantage of Reduced Instruction Set Computing hardware, a DEC official said.

By June, the company is also expected to make it possible to run the product on Unix International, Inc.'s System V Release 4 operating system, according to beta users and analysts.

DECmcc Director is the cornerstone of DEC's Enterprise Management Architecture, a 3½-year-old blueprint for enterprise-wide multivendor network and systems management. Version 1.2 will be the first implementation of DECmcc Director to operate on a non-VMS platform.

A Unix version of DECmcc Director had been expected for mid-year release ("DECmcc pack to undergo Unix face-lift," *NW*, Oct. 21, 1991). DEC demonstrated the package at INTEROP 91 Fall in San Jose, Calif., last year.

Analysts said Unix versions of DECmcc Director are necessary if DEC is to be successful in the systems and network management market, especially after the OSF passed over DECmcc Director in favor of Hewlett-Packard Co.'s

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Wellfleet to intro software for bridge/router security

By Maureen Molloy
Staff Writer

BEDFORD, Mass. — Wellfleet Communications, Inc. this week is expected to unveil new software for its multiprotocol bridge/routers that improves network access security and provides more control over bandwidth consumption.

The new Uniform Traffic Filters software will help administrators conserve the bridge/router's processing resources and wide-area net bandwidth by preventing unauthorized users from shipping certain types of data across wide-area links. It also aids in preventing unauthorized users from accessing net management applications.

The capabilities are designed to address user concerns about security as their internetworks grow and support more mainstream business applications. Wellfleet is the first router vendor to announce a network security feature of this type. Last month, several of the major hub vendors — including Cabletron Systems, Inc., 3Com Corp. and Ungermann-Bass, Inc. — also unveiled port-level security features for their local-area network intelligent hubs.

"To develop an effective security strategy for enterprise internetworks, users must establish filters to control access to applications and other network resources down to the level of individual protocols and interfaces," said Karen Barton, Wellfleet's director of product marketing.

The Uniform Traffic Filters secure communications by allowing a network administrator to filter traffic based upon fields within individual data packets. Administrators can also filter traffic based on predefined fields within a packet, such as source and destination address, and issue instructions to filter- or forward-specific types of packets.

The filter can also instruct the bridge/router to keep a log of events so the network adminis-

(continued on page 6)

ILAN router to get key SNA support

By Maureen Molloy
Staff Writer

MARLBOROUGH, Mass. — CrossComm Corp. this week will unveil new versions of its ILAN bridge/router, based on a redesigned architecture, that provide improved support for IBM Systems Network Architecture traffic on multiprotocol backbones.

A key component of the ILAN's Universal Router Architecture is a new Address Processor & Directory, a microprocessor that captures and maintains detailed information about devices in the network. It improves net management for users with large token-ring internetworks and works hand in hand with the device's packet-switched processor to boost routing efficiency.

The ILAN also has a new routing algorithm, based on Shortest Path First (SPF), that will improve load balancing and give ILAN nodes the ability to route around failed links in less than 10 seconds, thus preserving SNA and other types of sessions, said CrossComm President Tad Witkowicz.

"The new architecture will improve the way our IBM traffic gets carried across the network and will help us improve overall management of the network," said Steve Coppel, a telecommunications executive at First National Bank of Maryland in Baltimore.

The SPF algorithm enables an SNA session to be automatically rerouted along a different path without interruption if an existing route becomes congested or fails entirely.

In addition, the SPF implementation will enable users to more efficiently route IBM SNA and Network Basic I/O System protocols by overcoming the limitations inherent in IBM source routing and Transmission Control Protocol/Internet Protocol encapsulation.

Hardware engine

For every device connected to the network, the new Address Processor & Directory engine maintains a wealth of information, including a media access control (MAC) address, network address and, if applicable, a NETBIOS name or TCP/IP address. It also keeps statistics on network usage for traffic accounting and network planning, and prioritizes traffic.

Earlier versions of ILAN only maintained port number and MAC-layer address information on each device.

The engine will also handle some routing decisions formerly made in software, enabling pack-

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WHY HONGKONGBANK FINDS GDC A CAPITAL INVESTMENT.

The Hongkong and Shanghai Banking Corporation together with its subsidiaries and associates is one of the world's 30 largest banking groups. HongkongBank, chose General DataComm for a voice and data transport network to link its vast resources efficiently and reliably.

GDC's MEGAMUX TMS® networking multiplexers provided the backbone solution to connect and interconnect corporate headquarters in Hong Kong with locations in the U.S., the U.K., France, Switzerland, Japan, Australia, Canada and Singapore.

This proved to be an exciting challenge as the backbone network supports applications spanning 35 countries and 37 carriers. Given the scope of this enterprise, efficiency and reliability are critical. HongkongBank discovered that GDC's superior performance provided the most efficient use of bandwidth. And that's important for sophisticated applications such as electronic funds transfer, dealer boards, wire services, fax and automatic teller machines. And because reliability is so important, GDC ensures that HongkongBank has round-the-clock worldwide support.

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Circle Reader Service #105

CA adds new downsizing capabilities

By Barton Crockett
Senior Editor

GARDEN CITY, N.Y. — Computer Associates International, Inc. this week plans to announce new versions of its Realia compilers that make it easier to downsize applications from mainframes to local-area networks.

The company will announce a new version of its COBOL compiler for LANs, CA-Realia COBOL, that supports Microsoft Corp. Windows 3.1. It will also release a new version of its CA-Realia 370 assembly language compiler for LANs that will make it possible to support mainframe applications that perform floating point instruction calculations.

Both products compile programs for use on DOS 3.1 platforms.

Computer Associates, based here, will also unveil a new version of its LAN-based CICS teleprocessing software, CA-Realia CICS, that supports the Btrieve standard for accessing records in Novell, Inc. NetWare files. The vendor also has on tap a new version of its IMS teleprocessing software for LANs, CA-Realia IMS, that supports relational database management systems.

When used together, these enhancements will make it easier to use the Realia line of software to downsize mainframe applications to LANs, said Marc Sokol, product owner of the CA-Realia line in Chicago.

The Realia line supports downsizing by enabling users to take existing mainframe applications and run them on LANs with minimal modification. For example, CA-Realia COBOL performs the same function on a LAN that a COBOL compiler performs on a mainframe by translating COBOL commands into machine-readable code that the server uses to execute an application.

The CA-Realia CICS and IMS software products turn a LAN server into a CICS or an IMS teleprocessing monitor.

Sokol said the Realia software enhancements include features that are important to most users. For instance, support for Windows Version 3.1 will enable users to put a Windows front end on a LAN-based application written in COBOL.

Support for the floating point instruction calculation method on CA-Realia 370 will enable the compiler to support the large number of mainframe applications that perform such calculations.

The new version of CA-Realia IMS can be used to access the DB2 relational DBMS from IBM or incorporate some relational DBMS capabilities into DL1, the DBMS that comes with CA-Realia IMS.

Each new version of the Realia software will be available to a limited number of users in the second quarter. CA-Realia CICS and CA-Realia 370 each cost $995 per user, while CA-Realia COBOL costs $990 per user, and CA-Relia IMS costs $1,695 per user.

According to analysts, Computer Associates must make the improvements to keep up with Micro Focus of Palo Alto, Calif., the leader in the downsizing software tools market.

Wellfleet to intro software

continued from page 4

trator can detect which users are making unauthorized access attempts.

The filtering mechanism works with the full suite of Wellfleet protocols, including Apple Computer, Inc.'s AppleTalk, Digital Equipment Corp.'s DECNet Phase IV, Novell, Inc.'s Internet Packet Exchange (IPX), Transmission Control Protocol/Internet Protocol, Xerox Corp.'s Xerox Network Systems and X.25.

For each protocol used on a particular network interface, users can define as many as 31 filters. That means if two protocols are used on a single interface, as many as 62 filters can be defined for that interface.

Additionally, lists of items, such as a series of source addresses from which all packets should be dropped, can be represented in a single filter.

"The bottom line is you can do lots," Barton said.

The new security feature also helps optimize bandwidth use by limiting the types of data some users are authorized to ship across the WAN, she said. Filters can be employed to take advantage of protocols such as TCP/IP, for example, which has fields that identify packets by application. The filters could allow some users to ship electronic mail across a WAN, for instance, but deny them large file transfers.

Lastly, the filters enhance network management security by ensuring that only a select set of end users can gain access to a net management station on the network.

The Uniform Traffic Filters are a standard feature of Wellfleet's Version 5.70 software and are available now as a free upgrade to users of the vendor's software subscription service.

Oracle preps DBMS pack

continued from page 1

past promises," said Aaron Zornes, vice-president of application development strategies with the Burlingame, Calif., office of the META Group consultancy.

Version 7 has experienced a number of delays, which Oracle officials claim have resulted from additional testing and quality assurance procedures.

"What will be coming out soon for beta users is going to be a lot more solid than in the past," said an Oracle official.

With an expanded beta test program just getting under way, some company insiders are not expecting Version 7 to ship until at least the third quarter.

New features

One key new feature of Version 7 is a two-phase commit function used to simultaneously update multiple databases. The two-phase commit only allows updates when all databases are ready to receive them and is essential for maintaining data integrity across an enterprise net.

With the two-phase commit, distributed databases can be viewed by users and applications as a single, logical database and transparently handle queries, updates and table replication from anywhere in the network.

To use this function, application programs invoke a command to "commit" the transactions and do not need to know the physical location of the data, recovery mechanisms or other aspects of database coordination.

According to the Oracle officials, two-phase commit also allows the company to coexist in a distributed environment with other non-Oracle databases supported by transaction processing monitors, such as IBM's CICS and AT&T's Tuxedo.

For users that do not need full on-line distributed capabilities, Version 7 will provide a "snapshot" function that allows users to periodically replicate copies of a database and distribute them to remote sites. That periodic database refreshment can reduce network traffic.

Version 7 also supports location transparency, which means that SQL statements and applications will not have to be rewritten if data is moved. That transparency is achieved through what Oracle calls database links, which are named objects that provide a path to a remote database.

The product will also support ANSI-compliant "declarative" database integrity rules for both entity and referential integrity. Therefore, users will be able to define the rules by which certain database relationships are enforced in the server without any coding, thereby reducing application development time.

Version 7 also includes the ability to use Oracle's PL/SQL language to define stored procedures and triggers, mechanisms that invoke certain database commands when preestablished conditions have been met.

In addition to providing enhanced data integrity, stored procedures and triggers improve performance in a distributed environment because they can reduce the number of commands transmitted over the network.

According to analysts, one area in which Oracle could improve has been its query optimizer, which ensures that database operations in a network are being coordinated in the most efficient way.

Oracle said this tool was completely overhauled in Version 7. The company will offer a so-called cost-based optimizer and a resource limiter capability to boost performance and improve control over system resources during query execution. The cost-based optimizer chooses the most efficient query execution plan after analyzing database statistics, such as the size of rows and columns.

"Oracle needed to provide a strong query optimizer," said Shaku Atre, president of Atre Consulting in Rye, N.Y. "Now more than ever, you need an efficient way to know where the data is and how to get it."

Version 7 also utilizes a feature called Shared SQL, which allows many users to execute the same set of SQL statements, as well as a multithreaded server architecture, which improves support for multiple clients.

These two features reduce memory utilization, shorten application start-up time and decrease the number of operating system processes required as overhead.

NetWare 3.2 boasts audit feature

continued from page 1

the core of NetWare, a new class of user with rights to access auditing data, an auditing-specific application and a set of 19 application program interfaces (API) to which third parties can write additional auditing applications.

"Compared to what they have now, [these new features] would be worlds better," said one source who requested anonymity. NetWare 3.11 currently has basic auditing features, but administrators have no way of knowing which users are employing which services and applications, the source said.

The first addition, to be built into the core of NetWare 3.2, is what Novell calls its NetWare Auditing feature. It will give the system the ability to see which users are opening, changing, creating or deleting which files, plus which security privileges are being changed and by whom.

Second, NetWare 3.2 will include the ability to let the customer create a new class of user, called "auditors," who will have separate rights from other privileged users, such as supervisors.

"This new user will be able to log in and out as an auditor, look at file reads, audit user lists and audit records — those kinds of things," one source said.

Novell will also offer an auditing application, dubbed Auditcon, that the auditor can use to access the information collected by the NetWare Auditing feature.

Finally, Novell will release a set of 19 APIs that will let third parties build their own auditing applications, such as one that collects audit information for historical analysis.

Novell officials confirmed that NetWare 3.2 will have additional auditing features but declined to give specifics. The company did say, however, that it will be beefing up all areas of security to help NetWare 3.2 meet U.S. government C2 and European F2 security standards. This would allow NetWare to be used within various government agencies where it cannot run today.

Analysts and users agreed that auditing is one of the features on which Novell needs to improve.

Nancy Raley, director of office information systems at CalFarm Insurance Co. in Sacramento, Calif., agreed. "With the tools we have, we can see surges in traffic, but we can't tell, for example, that 14 people have just started file transfers," she said.

Raley said this would be most helpful for network administrators who need to get to the root of a network problem. She said it is also important for traditional security reasons.

"We want to be able to easily see who is doing what," she said. "And we want to be able to keep a historical log of that information." Raley conceded that products are available for these types of tasks, but most require a terminate-and-stay-resident (TSR) program at the workstation. Unfortunately, most of the workstations are running Microsoft Corp. Windows and don't have the memory necessary for the TSR programs. "So if Novell is going to build [this] in, that would be wonderful," she said.

The absolutely incredible story of how George Gilbert went from ordinary network manager to network god overnight...

...and he did it without FDDI! For George Gilbert (not his real name), yesterday began just like any other day for any other hardworking network manager across America. But before the sun had set, something truly amazing had happened. Something George could never have imagined—not even in his wildest dreams. Because during the day, George miraculously turned his sluggish, over-burdened 10 Mbit/s Ethernet LAN into a 70 Mbit/s Ethernet powerhouse. All by plugging in a single box no bigger than a hi-fi component. All without reconfiguring the basic layout of his LAN. All without FDDI. *George's solution? The remarkable and proven EtherSwitch.™* Based on reliable switching technology that has stood the test of time, the EtherSwitch from Kalpana gives George a perfect and immediate solution to Ethernet congestion. In fact, it's a dream come true! Because instead of sending a single packet one at a time, the EtherSwitch works like a telephone PBX to send multiple packets simultaneously. That's *Parallel Networking*. From the inventor of Ethernet switching technology. And it can add up to 70 Mbit/s performance or more! Plus George knows that with the amazing EtherSwitch, he will always be able to filter and forward 100% of all traffic with complete accuracy. And with low latency. No wonder he feels like he's suddenly sitting on top of the world. *So simple, all you do is plug it in.* Fortunately for George, the EtherSwitch is also a snap to install. And it's as easy to operate as a household appliance. By simply plugging it into his existing Ethernet LAN, he gets immediate results without reconfiguration. So from this day forward, whenever and wherever George sees congestion, he can simply plug in another EtherSwitch and become a hero all over again. *A small price for such big improvements.* With EtherSwitch, George is already beginning to reap an incredible return on his investment. All while adding new pep and unimagined vitality to his once lifeless Ethernet LAN. Plus he's leveraging his investment in existing Ethernet equipment. And best of all, these astonishing results come at a cost that's much, much lower than you would expect. Only $1,300* per port or less. It's almost too good to be true! *Perfect for all Ethernet applications.* George was also quick to discover that almost *every* situation can be improved with an EtherSwitch. Because with just the snap of a finger, he's dramatically speeding communication among two workers sitting side by side. And he's doing the same among two workgroups on different floors as well as two different divisions in two completely separate buildings. He just adds an EtherSwitch wherever there's a delay. Then he lets it take care of everything else. Amazed? *You too can have an incredible transformation!* George Gilbert is by no means the *only* network manager who is becoming an overnight sensation. It could easily happen to you. And to your Ethernet LAN. Simply by adding the amazing EtherSwitch to your network right now. To see how, all you have to do is fax Kalpana your current LAN configuration at 408/428-1161 (be sure to point out where congestion is occurring). And within 24 hours we'll respond with a customized, cost-efficient solution to boost Ethernet throughput. Or to see an EtherSwitch in action, call Kalpana now for your evaluation unit (800/488-0775).

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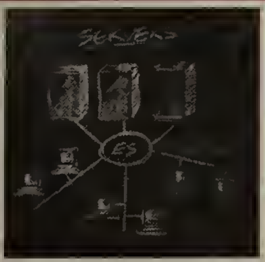

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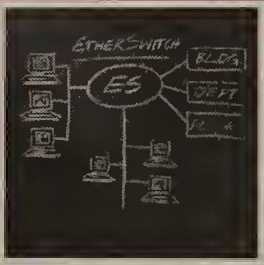

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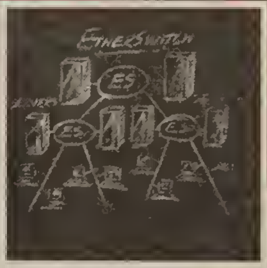

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UDS LanFast™ network modem puts your node on the road

Access to local area networks now extends well beyond the office walls, thanks to the new LanFast DM 20 from UDS.

The LanFast DM 20 is a LAN-resident dial-in/dial-out device, with a built-in V.32 *bis*/V.42 *bis* modem and Ethernet LAN adapter card. Its presence on a Novell LAN enables your "road warriors" to access the network, using a standard modem, from any place that offers a standard telephone jack.

The unit supports thick, thin or 10BaseT Ethernet, giving remote users and local nodes the same access to E-mail, shared databases and other network resources. Three levels of security deny access to unauthorized users, and a second high-speed serial port extends network reach by accommodating an external modem or high-speed digital device.

LanFast DM 20 is shipped with all necessary hardware and software. For remote access, it supports standard modems at speeds to 57.6 kbps and popular communications programs such as Procomm Plus Network and Crosstalk Mk. IV.

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Pass Along Application

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The Newsweekly of Enterprise Networking Strategies

1 **Industry: (check one only)**

01. ☐ Manufacturers (other than computer/communications)
02. ☐ Finance/Banking
03. ☐ Insurance
04. ☐ Real Estate
05 ☐ Healthcare Services
06 ☐ Legal
07. ☐ Hospitality
08. ☐ Retail/Wholesale Trade
09. ☐ Transportation
10. ☐ Utilities
11. ☐ Education
12 ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)
13. ☐ Government State/Local
14. ☐ Government Federal
15. ☐ Military
16. ☐ Aerospace
17. ☐ Consultants (Independent)
18 ☐ Carriers
19 ☐ Interconnects
20. ☐ Manufacturers (Computer/Communications)
21. ☐ VAR/VAD/Systems House
22. ☐ Distributor, Computer Related
23. ☐ Distributor, Communications Related
24. ☐ Other ______________________

2 **What is your job function? (check one only)**

NETWORKING MANAGEMENT
1. ☐ Networking Mgmt
2 ☐ LAN Mgmt
3. ☐ Datacom/Telecom Mgmt
4 ☐ Engineering Mgmt

MIS MANAGEMENT
5 ☐ MIS, IS, IT, Mgmt
6. ☐ Engineering Mgmt

CORPORATE MANAGEMENT
7. ☐ Corporate Mgmt (CIO, CEO, Pres, VP, Dir, Mgr, Financial Mgmt)

8. ☐ Consultant (Independent)

9. ☐ Other ______________________

3 **What is the total number of sites for which you have purchase influence? (check one only)**

1. ☐ 100+
2. ☐ 50 - 99
3. ☐ 20 - 49
4. ☐ 10 - 19
5. ☐ 2 - 9
6. ☐ 1

A. I Wish to Receive a FREE Subscription to *Network World*. YES ☐ NO ☐

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Business Phone ....

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First Name Middle Name Last Name

TITLE ....

COMPANY NAME ....

DIVISION/DEPARTMENT ....

STREET ADDRESS ....

CITY .... STATE .... ZIP ....

Must answer questions 1-18.
Sign and Date the Form to Apply.

Pass-Along Qualification Form

4 **Check all that apply in columns A and B:**
A: I am involved in the purchase of the following products/services.
B: I plan to purchase the following products/services in the next 12 months.

	Involved A	Plan to Purchase B	**LOCAL-AREA NETWORKS**
01.	☐	☐	Local-Area Networks
02.	☐	☐	LAN Servers
03.	☐	☐	LAN Operating Systems Software
04.	☐	☐	Superservers
05.	☐	☐	Data Base Servers (Oracle, Sybase, etc)
06.	☐	☐	Terminal Servers
07.	☐	☐	LAN Services
08.	☐	☐	LAN Storage Devices (Optical, Tape, Disk, Etc. including Backup Systems)
09.	☐	☐	Network Test Equipment
10	☐	☐	Hubs
11.	☐	☐	Cables, Connectors, Baluns
12.	☐	☐	UPS
13.	☐	☐	Network Adapter Boards
14	☐	☐	Central Office LANs
15	☐	☐	Wireless LANs
16	☐	☐	SNMP Network Management

	A	B	**INTERNETWORKING**
17.	☐	☐	Bridges
18	☐	☐	Routers
19	☐	☐	Gateways
20.	☐	☐	Bridge/Router
21.	☐	☐	Hubs
22.	☐	☐	Intelligent Hubs
23.	☐	☐	Communications Servers

	A	B	**COMPUTERS/PERIPHERALS**
24	☐	☐	Micros/PCs
25.	☐	☐	Minis
26.	☐	☐	Mainframes
27.	☐	☐	Laptops
28	☐	☐	Workstations
29.	☐	☐	Image Processing Workstations
30.	☐	☐	Front-End Processors
31.	☐	☐	Terminals
32.	☐	☐	Printers
33.	☐	☐	Cluster Controllers
34.	☐	☐	Fax Machines

	A	B	**SOFTWARE**
35.	☐	☐	Network Management
36	☐	☐	Micro to Mainframe
37.	☐	☐	Network Security
38.	☐	☐	Call Accounting
39.	☐	☐	Communication
40.	☐	☐	Word Processing
41.	☐	☐	Data Base Management
42.	☐	☐	Spreadsheet
43.	☐	☐	Groupware
44.	☐	☐	EDI
45.	☐	☐	E-Mail
46	☐	☐	Windows/Graphical User Interface
47.	☐	☐	4-GL
48.	☐	☐	Multimedia
49	☐	☐	Graphics

	A	B	**WIDE-AREA NETWORK EQUIPMENT/SERVICES**
50.	☐	☐	Modems (9.6kbps and over)
51.	☐	☐	Modems (under 9.6kbps)
52.	☐	☐	T-1
53.	☐	☐	T-3
54	☐	☐	Fractional T-1
55.	☐	☐	Data Switches
56.	☐	☐	Matrix Switches
57	☐	☐	Packet Switching
58.	☐	☐	Protocol Converters
59.	☐	☐	Network Management Systems
60.	☐	☐	Terminal Emulation Boards
61.	☐	☐	Diagnostic/Test Equipment
62.	☐	☐	DSU/CSU
63.	☐	☐	Data Compression Equipment
64.	☐	☐	Microwave
65.	☐	☐	Fax Boards
66.	☐	☐	VSAT
67.	☐	☐	Fiber Optic
68.	☐	☐	Satellite
69	☐	☐	ISDN
70.	☐	☐	PBXs (over 1000 lines)
71	☐	☐	PBXs (200 - 1000 lines)
72.	☐	☐	PBXs (under 200 lines)
73	☐	☐	Automatic Call Distributors
74.	☐	☐	Voice Messaging Systems
75.	☐	☐	Videoconferencing Systems
76.	☐	☐	Central Office Switch
77.	☐	☐	Voice Response/Processing
78.	☐	☐	Switched Voice
79.	☐	☐	Dedicated Leased Line
80.	☐	☐	Digital Data
81.	☐	☐	Switched Data
82.	☐	☐	Centrex
83.	☐	☐	On-Line Information
84	☐	☐	E-Mail
85.	☐	☐	SMDS
86.	☐	☐	Image Processing
87.	☐	☐	Audio Teleconferencing
88.	☐	☐	Local Services
89	☐	☐	WATS MTs
90.	☐	☐	International
91.	☐	☐	Virtual Networks
92.	☐	☐	Frame Relay
XX	☐	☐	None of the above

5 **What are your primary responsibilities? (check all that apply)**

1. ☐ LANs
2. ☐ Internetworking
3. ☐ WANs

6 **What is the scope of your involvement in purchase decisions for Network products & services? (check one only)**

1. ☐ Enterprisewide (Organization/Subsidiary/Division)
2. ☐ Multienterprise (Consultants)
3 ☐ Departmentwide

7 **Is your network: (check all that apply)**

LOCAL AREA NETWORKS
1. ☐ Local (within building)
2 ☐ Local (in a campus environment)

WIDE AREA NETWORKS
3. ☐ International
4 ☐ National
5. ☐ Regional (several states)
6. ☐ Metropolitan

8 **Which of the following network architectures/protocols are used? (check all that apply)**

01. ☐ SNA
02. ☐ DECNET
03. ☐ OSI
04 ☐ GOSIP
05. ☐ MAP/TOP
06. ☐ TCP/IP
07 ☐ DCA (Unisys)
08. ☐ X.25
09. ☐ NOVELL IPX/SPX
10. ☐ APPC/APPN/LU 6.2
11. ☐ NETBIOS
12. ☐ DEC LAT
13. ☐ APPLETALK
14 ☐ OTHER

9 **What is your LAN Operating System? (check all that apply)**

01. ☐ LOCALTALK (APPLETALK)
02 ☐ BANYAN (VINES)
03 ☐ DCA (IRMALAN)
04 ☐ IBM (LAN SERVER)
05 ☐ IBM (PC LAN PROGRAM)
06 ☐ MICROSOFT (LAN MANAGER)
07 ☐ UNGERMANN-BASS
08 ☐ NOVELL (NETWARE, 2.X, 3.X)
09 ☐ PROTEON (PRONET)
10 ☐ SITKA (TOPS)
11 ☐ 3COM (3+. 3+OPEN)
12 ☐ Other ______________________

10 **What is your LAN environment? (check all that apply)**

1. ☐ 4M TOKEN RING
2. ☐ 16M TOKEN RING
3. ☐ ARCNET
4. ☐ ETHERNET
5. ☐ STARLAN
6. ☐ FDDI
7. ☐ LOCALTALK
8. ☐ 10BASE-T
9. ☐ OTHER ____________

11 **Are you involved in the implementation of client/server applications?**

Yes ☐ No ☐

12 **Which operating system do you utilize? (check all that apply)**

01. ☐ DOS
02. ☐ UNIX/XENIX
03. ☐ OS/2
04. ☐ OS/2 EX ED.
05 ☐ MVS
06. ☐ VM
07. ☐ VMS
08. ☐ NUBUS
09. ☐ WINDOWS
10. ☐ OTHER

13 **For which areas outside of the U.S. do you have purchase influence? (check all that apply)**

1 ☐ Europe
2. ☐ Asia
3 ☐ South America
4. ☐ Australia
5. ☐ Middle East

14 **Which of the following vendors equipment do you currently have installed in your network? (check all that apply)**

Vendor	Mainframes A	Minis B
01 DEC	☐	☐
02. IBM	☐	☐
03 AMDAHL	☐	☐
04 AT&T	☐	☐
05. BULL HNIS	☐	☐
06 NCR	☐	☐
07 DATA GENERAL	☐	☐
08 WANG	☐	☐
09 HEWLETT-PACKARD	☐	☐
10 PRIME	☐	☐
11 TANDEM	☐	☐
12. UNISYS	☐	☐
13 CONTROL DATA	☐	☐
14 OTHER	☐	☐

15 **Please indicate the number of Microcomputers Workstations:**
A Presently installed in your network
B. The approximate quantity you plan to install in the next 12 months

Micros/Workstations	Presently Installed A	Plan t Install Next 1 Month B
1. Macintosh	______	______
2. PCs Based on 80586 Chips	XXXX	______
3. PCs Based on 80486 Chips	______	______
4. PCs Based on 80386 Chips	______	______
5. PCs Based on 80286 Chips	______	______
6 PCs Based on 8086/8088 Chips	______	______
7. Risc-Based Workstations	______	______
8 Unix-Based Workstations	______	______

Use Numbers Only

16 **Estimated value of networking equipment and services:**
A Which you helped specify, recommend or approved in the last 12 months?
B Which you plan to help specify, recommend or approve in the next 12 months?

	A	B	
1	☐	☐	$100 million and over
2	☐	☐	$50 - $99 9 million
3	☐	☐	$25 - $49 9 million
4	☐	☐	$20 - $24.9 million
5.	☐	☐	$10 - $19.9 million
6.	☐	☐	$5 - $9.9 million
7	☐	☐	$1 - $4 9 million
8	☐	☐	$500,000 - $999,999
9	☐	☐	Under $500,000

17 **Estimated gross annual revenue of your entir company/institution: (check one only):**

1 ☐ Over $10 billion
2 ☐ $1 to $9 9 billion
3 ☐ $500 to $1 billion
4 ☐ $100 to $499 9 million
5 ☐ $50 to $99 9 million
6. ☐ $10 to $49 9 million
7 ☐ $5 to $9 9 million
8. ☐ Under $5 million

18 **Estimated number of employees for your entire corporation:**

1 ☐ Over 10,000
2 ☐ 5,000 - 9,999
3 ☐ 2,500 - 4,999
4 ☐ 1,000 - 2,499
5 ☐ 500 - 999
6 ☐ Under 500

Worth Noting

> "Some companies say they want to unplug their IBM 3090 mainframe in 1993. Some say 1996. Others say they'll keep them. But all companies are planning on doing something with client/server. That couldn't have been said 18 months ago."

Dennis McEvoy
President and chief
executive officer
Cooperative Solutions, Inc.
San Jose, Calif.

Data Packets

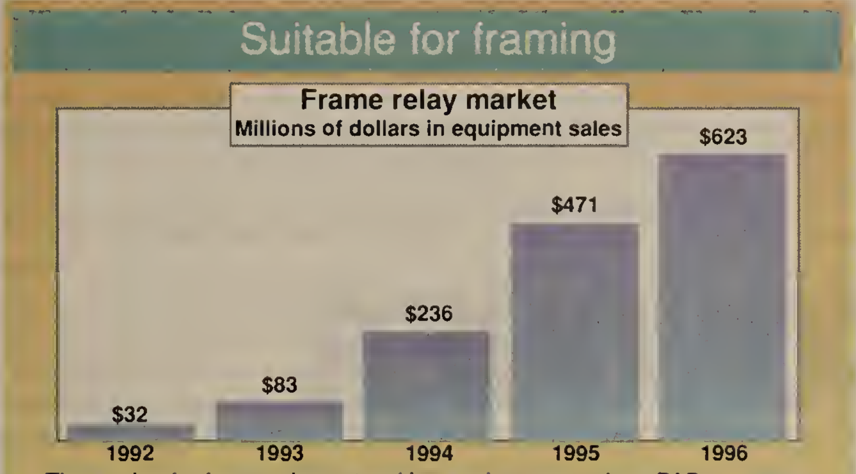
Digital Communications Associates, Inc. last week introduced a version of its CrossTalk communications software that supports multiple users in a local-area network environment.

Running on a server in a Novell, Inc. network, CrossTalk Mark 4 LAN Pack can simultaneously support as many as four client workstations running Version 2.1 of CrossTalk Mark 4.

The product provides modem sharing through an asynchronous communications server, eliminating the need for each user to have a dedicated modem attached to each workstation.

The software also provides emulation of Wyse Technology Corp. and Hewlett-Packard Co. terminals and supports communications with Digital Equipment Corp. hosts using the Local Area Transport protocol.

CrossTalk Mark 4 LAN Pack costs $1,295. CrossTalk Mark 4 Version 2.1 is priced at $245. Both products will be available later this month.



The market for frame relay networking equipment, such as PADs, routers, switches and multiplexers, is expected to reach $623 million by 1996.

GRAPHIC BY TERRI MITCHELL SOURCE: VERTICAL SYSTEMS GROUP, DEDHAM, MASS.

Brixton's software packs usher Sun into IBM shops

SPARCstations, mainframes linked via X.25 nets.

By Jim Duffy
Senior Editor

CAMBRIDGE, Mass. — Brixton Systems, Inc. recently unveiled three new or enhanced software packages that give users new ways to link Sun Microsystems, Inc. workstations to IBM mainframes.

To connect Sun SPARCstations to IBM mainframes over public and private X.25 packet networks, Brixton introduced BrxQLLC.

BrxQLLC allows Sun clients to communicate with IBM hosts over X.25 networks, emulate IBM 3270 and 3770 terminals and share data with mainframe applications.

Qualified Logical Link Control is an IBM protocol for allowing Systems Network Architecture traffic to traverse X.25 networks. It lets X.25 data appear as Synchronous Data Link Control data to an SNA host.

BrxQLLC, which runs on Sun SPARCstations, is bundled with Brixton's BrxX.25 and BrxPU2 Server software. BrxX.25 provides the physical, data link and network layer functions of X.25 to Sun clients.

BrxPU2 Server allows the Sun workstations to emulate IBM PU Type 2 devices, such as cluster controllers, that are required to establish a logical session with an SNA host.

Brixton also unwrapped BrxBSC, software that enables Sun SPARCstations to communicate with IBM mainframes using the Binary Synchronous Communications protocol.

BSC is a half-duplex protocol that requires the receiving device to acknowledge every data block that is transmitted. It can be used on point-to-point and multipoint leased and switched circuits.

Software enhancement

In addition, Brixton also enhanced its BrxTR/SNA .software to support Sun's 16M bit/sec Sbus Token-Ring network interface cards. BrxTR/SNA, which debuted last fall ("Token-Ring products link SPARCstations," *NW*, Oct. 21, 1991), already supports Sun's 4M bit/sec Token-Ring card.

BrxTR/SNA software supports the connection of Sun SPARCstations to IBM SNA networks over IBM Token-Ring local-area networks instead of traditional SDLC lines.

The software allows a SPARCstation to initiate a session with an IBM mainframe via a Token-Ring-attached IBM front-end processor or cluster controller.

BrxQLLC is priced at $3,250. BrxBSC is priced at $750, while BrxTR/SNA software with 16M bit/sec Sbus token-ring support costs $1,295.

All the products are available now.

> BrxQLLC allows Sun clients to communicate with IBM hosts over X.25 networks.

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ATM to drive N.J. auto registration net

Renewal system to ease walk-in traffic, offer 24 hour service, save cost of opening more offices.

By Jim Duffy
Senior Editor

TRENTON, N.J. — New Jersey's Department of Law and Public Safety this spring will test-drive automated teller machines as interfaces to an automobile registration renewal network.

A network of the kiosk-style, self-service machines is intended to ease walk-in traffic at the department's Motor Vehicle Services (MVS) agency locations. It may also save MVS the expense of adding more offices and linking them to the MVS database over leased telephone lines.

"Registration renewal is our high-volume transaction," said Jeanne Paulsen, systems administrator for MVS. "Traffic is very heavy in our agencies. This will help alleviate some of that."

MVS processes more than 5 million registrations per year, which accounts for roughly 50% of all its business.

The statewide, point-to-point digital renewal network, scheduled to come on-line this fall, will initially link 55 ATMs. Leased 9.6K bit/sec lines will connect each kiosk to MVS' Hitachi, Ltd. mainframe in West Trenton, N.J., for retrieving and updating its database of registration records.

MVS officials envision a system whereby the motorist initiates a renewal transaction at a kiosk through a touch-screen interface. The renewal application, developed by NCR Corp., will reside locally on NCR's 5682 ATM terminal and will guide the motorist through the renewal process.

The 5682 terminals are based on NCR's System 3000 processors and sport a 14-in. color graphic screen. It supports both audio and full-motion video and is designed to be a component of a 24-hour service area.

When motorists enter their driver's license identification number, license plate number and date of birth, the system will

(continued on page 10)

Major video vendors pass Px64 interoperability tests

By Bob Brown
Senior Editor

Three top videoconferencing vendors recently reported positive results from interoperability testing of products supporting the CCITT's new Px64 standards.

Compression Labs, Inc. (CLI), PictureTel Corp. and VideoTelecom Corp., which collectively account for about 70% of the world's installed base of videoconferencing systems, participated in the point-to-point tests.

In the tests, carried out during the past few months, CLI separately tested its equipment for interoperability with both PictureTel and VideoTelecom gear. PictureTel and VideoTelecom also tested interoperability of their systems. The tests were conducted at vendor facilities using 112K and 384K bit/sec links.

"The basic parameters of the tests were to run a videoconference and see how well the video and audio [worked]," said a CLI spokeswoman. No major problems were discovered, she added.

The companies tested the H.261 standard for video coding, H.221 for communications framing and H.242 for call setup and disconnect. They also tested G.711 for high bit rate audio and G.722 for adaptive differential pulse code modulation audio.

The firms did not test emerging Px64 standards for multipoint videoconferencing, video signal encryption and simultaneous video/graphic transport.

John Rohal, senior communication technology analyst at Alex. Brown & Sons, Inc., a securities firm in Baltimore, said interoperability could be a boon for the market. "Users want interoperability between systems to improve the flexibility of their videoconferencing," Rohal said.

DEC users have a long wait for Alpha microprocessor products

By Jim Duffy
Senior Editor

MAYNARD, Mass. — Users hoping to realize the performance advantages of Digital Equipment Corp.'s new Alpha microprocessor in the company's networking products will have to wait.

The much-anticipated chip debuted two weeks ago as DEC's strategic computing platform for the future and the ultimate successor to the firm's VAX architecture. DEC claims that the 64-bit Reduced Instruction Set Computing device is the world's fastest microprocessor, with an address space thousands of times larger than the 32-bit implementations from competitors such as IBM, Hewlett-Packard Co. and Sun Microsystems, Inc.

Initially, the chip will be used in high-end computing systems, such as Cray Research, Inc. supercomputers and powerful DEC scientific and engineering workstations, according to analysts. It will be at least two years until DEC is likely to build a networking product — probably a multigigabit router — around Alpha, they said.

"There's no reason they shouldn't use it in a networking product, but it won't get into communications devices for a while," said Howard Niden, senior manager at Price Waterhouse. "Sixteen hundred dollars for a processor chip is pretty damn expensive."

Each Alpha costs $1,650 when purchased in quantities of 101 to 1,000 and $1,559 for more than 1,000.

Judy Cross, a DEC network consultant, agreed that Alpha will not immediately find its way into the company's networking product line. Most current networking hardware — such as Fiber Distributed Data Interface bridges, controllers and concentrators — are underutilized today and, therefore, do not need the increased performance of Alpha, she added.

But even though DEC is not immediately fitting its network hardware with the faster chip, it is prepping networking software for Alpha. The company is currently porting DECnet and Advantage Networks software to the Alpha platform and should have Alpha-ready implementations of the software available later this year or early 1993, Cross said.

That should increase the performance of servers and support faster directory searches, for example, and allow DEC systems to pump more data onto the network faster. ◘

ATM to drive N.J. auto registration net

continued from page 9

call up MVS' Hitachi mainframe and pull down the driver's motor vehicle record from the mainframe's database. The driver then updates the registration and vehicle information, which will be stored locally until the mainframe polls each terminal nightly to update its database.

After the driver updates the information, he swipes a credit or debit card through the ATM to pay for and complete the transaction. A separate credit authorization network, which Paulsen presumes will be dial-up, handles the card authorization. The ATM machine will then dispense a registration card and receipt.

MVS has not selected a credit card authorization service provider, Paulsen said.

Currently, the agencies use Bull HN Information Systems, Inc. desktop systems that are linked to a front-end processor (FEP) at the mainframe site through leased-line modems at 9.6K bit/sec. About 25 of the 48 agencies have their own dedicated links to the FEP, while the remainder share multidrop lines, Paulsen said.

Under the pilot program, 10 prototype machines will be placed in public areas statewide. The machines will not be online with the MVS database but will demonstrate how a registration renewal will be performed once the system is up.

The pilot, which will cost the state $463,000 to implement but is free to use, is scheduled for completion early this summer.

Motorists go to MVS agency locations once or twice a year, according to department officials. By situating the kiosks at shopping malls, supermarkets and other public locations, MVS can potentially offer its services 24 hours a day, seven days a week.

Los Angeles County recently implemented a similar net using BT North America, Inc.'s Tymnet packet net for motorists paying traffic and parking tickets. ◘

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LOCAL NETWORKING

LAN HARDWARE, NETWORK OPERATING SYSTEMS AND LAN MANAGEMENT

Worth Noting

The worldwide market for local-area network asynchronous communications products will explode over the next few years, increasing from $56 million in 1991 to $300 million in 1995, according to a recent report from International Data Corp., a research and consulting firm in Framingham, Mass.

Netnotes

Blue Lance, Inc. of Houston last week unveiled the LT Auditor 4.0, a new version of its net monitoring product for Novell, Inc. NetWare local-area networks that provides application utilization data and hardware monitoring.

The LT Auditor 4.0 can now monitor and record who logs on to the network; where users log in and out; which users open, read, write, rename, delete and copy particular files and directories; and from which workstations users create, change and delete user accounts, security rights, print queues and all other bindery objects, according to the firm.

In addition, the package can notify the administrator when the number of application users exceeds the number of copies authorized by the software license and when there is a change to hardware inventory.

The product will be available in the second quarter for $695 per server as either a NetWare Loadable Module for NetWare 3.X environments or a value-added process for NetWare 2.X environments. A version for Microsoft Corp.'s LAN Manager is under development and is expected to be available in the second half of the year. ◪

Firm bolsters HyperAccess with more speed, security

Automated file transfer, new interfaces also added.

By Caryn Gillooly
Senior Editor

MONROE, Mich. — Hilgraeve, Inc. last week unveiled a new version of its HyperAccess/5 asynchronous communications software for both DOS and OS/2 clients that includes a new Modular Communications Engine (MCE) that will speed throughput and support a broader range of network interfaces.

Additionally, Version 2.1 includes a new Zmodem Crash Recovery feature that lets users restart incomplete file transfers from the point of failure. New automated file transfer and enhanced security features have also been added.

"We've been using [HyperAccess] since about a year ago when we converted [from DOS] to OS/2, and, so far, this new release looks good," said Frank Roche, president of National Digital Corp., a HyperAccess/5 2.1 beta site in Falls Church, Va.

"This is one of the only [asynchronous communications] packages that offers OS/2 support and just about everything else we need," he said.

The primary enhancement within Version 2.1 is the MCE, according to Matt Gray, president of Hilgraeve, based here. Three years in development, the new engine decouples low-level I/O processing from other tasks that communications software must perform, such as servicing the keyboard and display.

MCE advantages

This has two primary benefits. First, because I/O is conducted separately, the personal computer's transaction processing speed is increased, although Gray could not estimate by how much.

Another benefit of decoupling the I/O is support for more types of network interfaces. Because the I/O transactions are separate from the rest of the routines, Hilgraeve will be able to add support for more graphical and network interfaces without changing the core processes within the product, he said.

Primary among the other enhancements are the Zmodem

(continued on page 12)

NetWare 3.2 will include net imaging

By Margie Wylie
Senior Editor

SAN FRANCISCO — Novell is developing a new image.

The company recently detailed how the next release of its NetWare operating system will offer low-level services needed to create imaging applications that can run on a NetWare network without proprietary hardware or storage formats.

Jointly developed with Eastman Kodak Co. of Rochester, N.Y., the services will let developers create applications that send, store and manage image files over a NetWare Version 3.2 local-area network ("Novell, Eastman Kodak lay plans for NetWare imaging," *NW*, Oct. 28, 1991).

The new NetWare services could lead to the availability of less expensive, more compatible products in the next two to five years, according to the two firms.

"Right now, a lot of [imaging] application vendors have to provide system services as part of their programs," said Dave Hanson, program manager at Eastman Kodak.

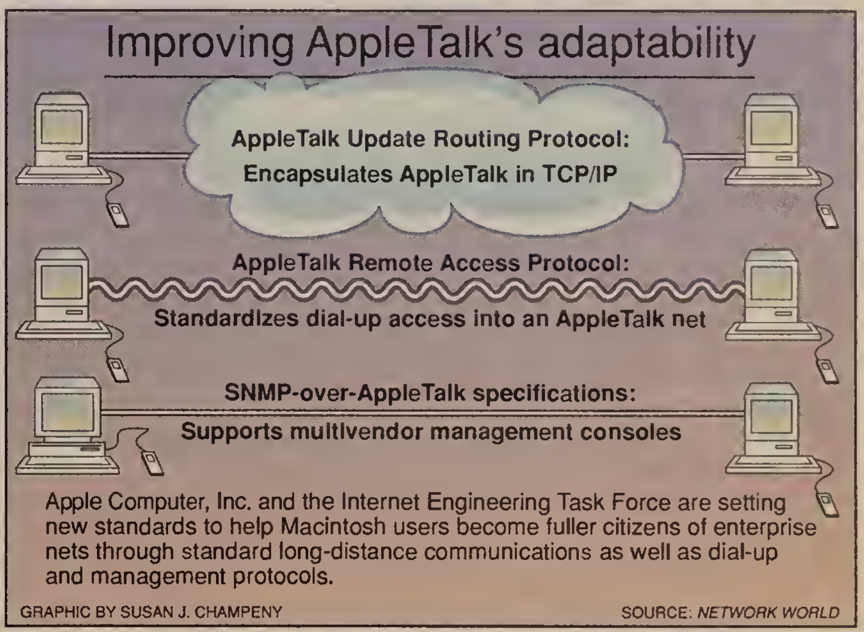
The NetWare services will store and manipulate image files in standard formats, such as Tag Image File Format (TIFF), Encapsulated PostScript and Eastman Kodak's Photo CD. Eastman Kodak is also developing a compatible set of services for OS/2 users. Those services are slated to ship as an integral part of Lotus Development Corp.'s Notes groupware product, said Hanson.

Novell and Eastman Kodak will provide High Capacity Storage Services for NetWare that will allow the use of removable and high-capacity optical media, such as laser disks and compact disc jukeboxes.

High Capacity Storage Services will ship as a component of NetWare 3.2, which is due by year

(continued on page 12)

Improving AppleTalk's adaptability


AppleTalk Update Routing Protocol:
Encapsulates AppleTalk in TCP/IP
AppleTalk Remote Access Protocol:
Standardizes dial-up access into an AppleTalk net
SNMP-over-AppleTalk specifications:
Supports multivendor management consoles

Apple Computer, Inc. and the Internet Engineering Task Force are setting new standards to help Macintosh users become fuller citizens of enterprise nets through standard long-distance communications as well as dial-up and management protocols.

GRAPHIC BY SUSAN J. CHAMPENEY

SOURCE: *NETWORK WORLD*

AppleTalk standards enter public domain

IETF now defining how to use SNMP to manage Macs on AppleTalk LANs with Apple's backing.

By Margie Wylie
Senior Editor

CUPERTINO, Calif. — When it comes to Macintosh networking standards, Apple Computer, Inc. has traditionally dictated what goes on its platform, but a move is afoot to push some Macintosh network standards-setting activities into the public domain.

With Apple's support, the Internet Engineering Task Force (IETF) is now defining how to use the Simple Network Management Protocol for managing Macintoshes on AppleTalk local-area networks. The IETF, which is the public standards-making body for the Internet, is also considering standards for running AppleTalk over wide-area Transmission Control Protocol/Internet Protocol connections and modem links.

"This is quite a change for Apple," said Dana Harrison, product line manager for AppleTalk. "AppleTalk's specs have always been available to any developer who bought the book *Inside AppleTalk,* but this is the first time that the design is being done in a standards committee instead of an ivory tower in Cupertino."

For net management, an IETF working group is defining how to run SNMP over AppleTalk as well as what kind of information SNMP management applications will be able to retrieve from Macintoshes, routers and other elements. The IETF has already completed work on AppleTalk Management Information Base (MIB) I, but work is still pending on the newer MIB II and SNMP-over-AppleTalk specification.

However, that is not good enough for some Apple users. "In April or May, we will see products [based on the Open Software Foundation, Inc.'s] Distributed Management Environment, and Apple is still defining the basics," said George Pornaras, data network engineering group leader at NASA Ames Research Center at Moffet Field, Calif.

Apple officials admit the firm lost two years worth of time when it aborted development of its proprietary AppleTalk Management Protocol (AMP) in favor of SNMP and it is leaving the net management console business to others.

According to Harrison, the company is considering licensing the old AMP management console code to a developer that will adapt it to SNMP, which will eventually replace Macintosh's current version of a network management agent, residing in systems software. Apple may also hand over ongoing maintenance and possibly development of that agent to a third party.

The IETF is also examining several proposed standards for routing AppleTalk over wide-area TCP/IP nets using encapsulation.

Several companies, such as Cayman Systems, Inc. and Shiva Corp., both of Cambridge, Mass., already sell routers that use that method, but without a standard.

(continued on page 12)

DEC announces agreement to resell Banyan's VINES

By Caryn Gillooly
Senior Editor

WESTBOROUGH, Mass. — As expected, Digital Equipment Corp. last week added Banyan Systems, Inc.'s VINES to the list of local-area network operating systems it sells.

Both vendors announced a worldwide service and support agreement wherein DEC will add VINES to its product list, buy and stock inventories of VINES and maintain VINES in its multivendor integration laboratory ("DEC to resell VINES," Briefs, *NW*, March 2).

The two companies also agreed to exchange product and technical information regularly and train select DEC personnel to become Certified Banyan Engineers.

"This [agreement] will appeal to customers that have both VINES and Digital equipment today," said John Rose, vice-president of DEC's Personal Computing Systems Group in Maynard, Mass. "For those customers, we'll now be able to provide a single point of service [for both companies' products]."

At this time, the agreement does not include a port of VINES to DEC processors, said James D'Arezzo, vice-president of marketing for Banyan, based here.

Although D'Arezzo would not say whether this is the beginning of a broader relationship, he stressed the synergy between the two companies.

"We're not making any announcements with regard to future plans, but both [DEC and Banyan] have committed to supporting open systems [platforms]," he said. "Both are part of the [Open Software Foundation, Inc.]; both have publicly said they will support the OSF's [Distributed Computing Environment]. You can see a great deal of parallelism between the two."

D'Arezzo denied, however, that there is any kind of pending merger or similar agreement between the companies, as some analysts have suggested. ◘

NetWare 3.2 will include imaging

continued from page 11

end. All other services, however, will be packaged and sold separately sometime after NetWare 3.2 debuts, said Hanson, who declined to provide further details.

Image Management Services will add the advanced capabilities on top of High Capacity Storage Services that developers will need to store and manipulate image files. The services will compress and decompress image files before being stored or retrieved, reducing mammoth image files to as little as one quarter of their original size.

For example, photographic-quality color images that average about 16M bytes can be compressed to as little as 4M bytes, said Hanson. Image Management Services will let applications perform basic image manipulations, such as scaling, rotating and cropping. This set of NetWare Loadable Modules will also support input and output services.

Document Management Services will let users tag files with short descriptions on searchable "index cards" and file them in hierarchies of folders and "workbaskets."

Mass Storage Services will let managers configure applications that automatically archive images based on a number of factors, including file creator and date of creation. The feature will preserve more easily accessed but scarcer disk drive space for more recent or higher priority images. Older or less critical images can then be automatically moved to off-line or near-line systems, such as optical jukeboxes or magnetic tape, Hanson said.

> As the technology advances, tomorrow's imaging application could be more complex.
>
> ▲▲▲

Although current imaging applications are more common in hospitals and law offices, which must still conduct most daily business on paper, their popularity is beginning to grow, according to Jamie Lewis, vice-president of information services for The Burton Group, a Salt Lake City-based research and consulting firm.

Today's typical system usually deals with items no more complex than scanned text. However, as the technology advances and prices go down, tomorrow's imaging application could be far more complex. "Computing has traditionally just dealt with automating tedious tasks," said Lewis. "As we move into more distributed technology, applications will define and become part of the job happening in a network, not just automate tasks external to the work itself."

Hanson agreed, saying Novell and Eastman Kodak's imaging services were created with that in mind.

Developers will not get their first glimpse at application program interfaces until Novell's developers conference next month, which kick off start what can be a lengthy revision cycle before the services and applications become available. ◘

Firm bolsters HyperAccess

continued from page 11

Crash Recovery and Auto-Download features, according to Gray.

Auto-Download means a user will be able to initiate a file transfer without the "consent" of the receiving PC.

"You'll only have to involve one PC, not both," he said, adding that although the receiving PC has to be turned on, it does not necessarily have to know that a file is being sent.

With Zmodem Crash Recovery, if a transmission is cut off, the user can resume the transmission where it was disrupted, rather than resending the entire document. Zmodem is an error-checking protocol used when transmitting files over telephone lines.

That was an important feature to Roche.

"We transmit photos for such weekly magazines as *Time* and *Newsweek*," he said. "We transmit large files of up to 18M bytes. In some cases, a single file can take up to 45 minutes to transmit.

"So recovery is key to us. If a line breaks in the middle of a transmission, we need to be able to pick up where we left off," Roche added.

The software's security features have also been enhanced. The new version, according to Gray, can detect as many as 644 viruses on the fly.

"If the software encounters something that looks like a known virus, it automatically sends the user a message asking if the transfer should be canceled," he said.

Gray added that if the user chooses to cancel the transmission, no part of the file is transferred; therefore, there is no risk of infection. "We differentiate ourselves through detection on the fly," he said.

HyperAccess/5 Version 2.1 for DOS costs $99.95; the HyperAccess/5 DOS and OS/2 combination package costs $199. Registered owners of HyperAccess/5 can upgrade to the new Version 2.1 for $29.95. All products are available now. ◘

Standards enter public domain

continued from page 11

their routers do not interoperate.

The IETF is still considering various methods of encapsulation, including Apple's AppleTalk Update Routing Protocol (AURP) and others such as the AppleTalk Border Gateway Protocol, a variation of a TCP/IP standard also being considered by the IETF.

Meanwhile, Apple's upcoming Internet Router 3.0, due this year, will perform TCP/IP routing for the first time using AURP, a move that some users said makes it clear that the firm may yet reserve the right to ignore the standards body's decisions and set its own de facto standards.

"The obvious benefit of AURP is that it will give at least a standard method of ecapsulation, and that will mean interoperability. But it's not the most efficient protocol being considered," Pornaras said.

Through the IETF, Apple is also proposing a standard method for making a connection to AppleTalk networks using dial-up connections.

Many vendors are already selling products that allow users to dial in to Macintosh networks from home or the road. All are based on their own interpretation of AppleTalk and were popular products long before Apple began the drive to standardize the AppleTalk Remote Access Protocol (ARAP).

Since an ARAP-based application, called AppleTalk Remote Access, has already shipped free of charge with the popular Macintosh PowerBook notebook computer, there is little doubt the standard will be widely adopted. ◘

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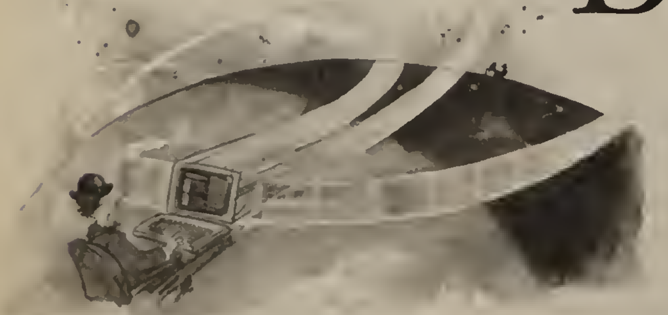

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Worth Noting

> "When it comes to hubs, management is now just as important as connectivity. Users aren't interested in brain-dead boxes anymore."
>
> **Edward Barrett**
> President
> Hi-TECH Connections, Inc.
> Reading, Pa.

Link Notes

Eicon Technology Corp. last week announced a router that transmits local-area network traffic between Novell, Inc. NetWare LANs over point-to-point leased lines, X.25 links and frame relay wide-area networks.

Router for NetWare, which will enable LAN workstations to share resources on any local or remote NetWare LAN, is available in two configurations: multipoint for X.25 connections and point-to-point for frame relay and leased-line connections.

In the multipoint configuration, the device supports as many as 11 simultaneous connections over a single EiconCard network interface card. In the point-to-point configuration, the device supports as many as three EiconCards and one connection per card.

The router features a Microsoft Corp. Windows-based network management console that includes status and statistics displays and router directory services.

Available this month, Router for NetWare costs $995.

For more information, contact Eicon at (214) 239-3270.

Wellfleet Communications, Inc. last week unveiled a new Ethernet Link Module

(continued on page 15)

LANNET unveils LocalTalk, fiber cards for wiring hub

New fiber modules offer auto port switching.

By Joanne Cummings
Staff Writer

HUNTINGTON BEACH, Calif. — LANNET Data Communications, Inc. recently unveiled several modules for its intelligent wiring hub, including three with fiber ports and a LocalTalk card.

The new modules give LANNET's MultiNet hub support for Apple Computer, Inc. LocalTalk connections as well as automatic switching between ports. Automatic switching enables users to link the same local-area network to two ports, with one link active and the other acting as a hot standby. When one connection goes down, the hub can switch the LAN to the second port, thereby offering users redundancy.

LANNET's MultiNet is an intelligent wiring hub that houses as many as 18 LAN modules, providing support for Ethernet, token-ring, Apple's AppleTalk and Fiber Distributed Data Interface protocols simultaneously, according to Avi Fogel, LANNET's president and chief executive officer.

The new LE-20N is a plug-in card for MultiNet that is compatible with the emerging IEEE 802.3 10Base-FB standard for running Ethernet over multimode fiber via synchronous signaling.

Like the firm's previous LE-20 card, the module has two fiber ports. But unlike the LE-20, the LE-20N supports switching between the ports and provides fault tolerance, Fogel said.

The LE-20N can be managed by LANNET's MultiMan Simple Network Management Protocol-based management system, enabling a user to perform port switching via software. Otherwise, port switching must be performed manually. Available now, the LE-20N costs $890.

(continued on page 15)

Vitalink rolls out line of RISC-based bridge/routers

By Maureen Molloy
Staff Writer

FREMONT, Calif. — Vitalink Communications Corp. announced it has started shipping its 6000 series Reduced Instruction Set Computer (RISC)-based multiprotocol bridge/routers, the first fruit of the company's merger last summer with Minneapolis-based Network Systems Corp.

The 6000 series includes three RISC-based product lines — the 6400, 6600 and 6800 — which vary according to the number of ports and protocols they support.

The 6600 consists of eight single-board, RISC-based multiport bridge/routers that forward data at speeds greater than 25K packet/sec. The bridge/routers support the Transmission Control Protocol/Internet Protocol, Novell, Inc.'s Internetwork Packet Exchange (IPX) and Apple Computer, Inc.'s AppleTalk Phase II.

The 6400, which has a six-slot chassis and a 400M bit/sec backplane, can support any combination of Ethernet, T-1 and T-3 connections, and as many as two Fiber Distributed Data Interface rings.

The 6800 consists of a 16-slot chassis and an 800M bit/sec backplane. It supports up to five FDDI rings.

Both the 6400 and 6800 also support TCP/IP, IPX, AppleTalk Phase II and Digital Equipment Corp.'s DECnet Phase IV.

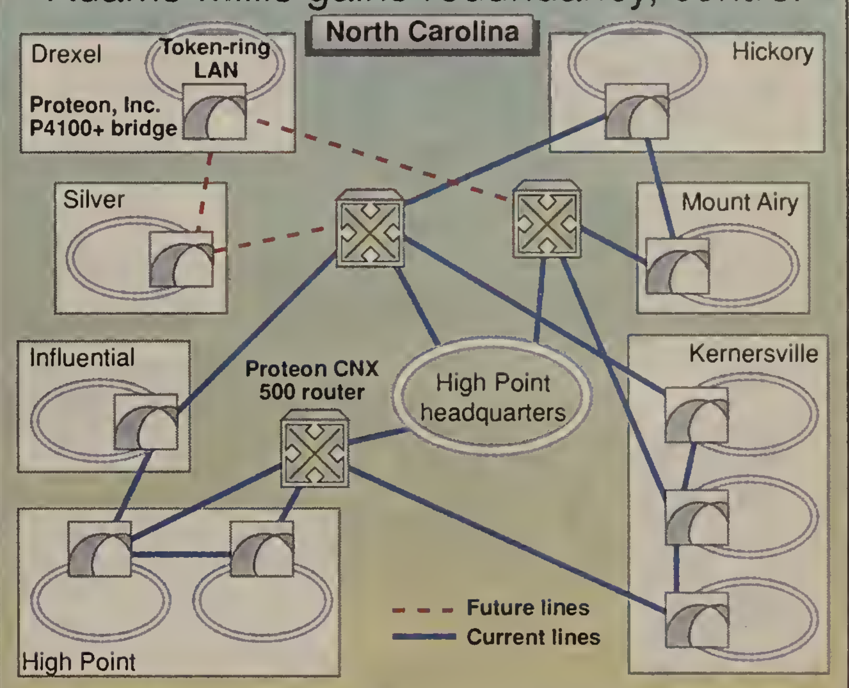
The 6600 is priced starting at $6,950, the 6400 starts at $17,500, and the 6800 starts at $24,500. All are available now.

Vitalink also announced a new 16M bit/sec token-ring interface module for its existing 5000 series bridge/routers that will enable users to expand their networks by interconnecting both 4M and 16M bit/sec token-ring local-area networks.

The module is equipped with eight serial ports, enabling it to connect a 16M bit/sec token ring to as many as eight remote LANs.

The module costs $1,500 and is available now for the vendor's TransRING bridges. It will also be available for Vitalink's TransPATH bridge/router in the second quarter. ◪

Adams-Millis gains redundancy, control



Adams-Millis' new LAN Internetwork provides at least two 56K bit/sec paths from each site to the company's headquarters.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: ADAMS-MILLIS CORP., HIGH POINT

Network gives user improved control

Token-ring internetwork enables Adams-Millis to perform remote diagnostics and management.

By Joanne Cummings
Staff Writer

HIGH POINT, N.C. — Adams-Millis Corp.'s new token-ring internetwork is paying big dividends to the company in reliability and improved network management, which translates into improved productivity at its manufacturing sites.

The nation's largest sock maker has installed local-area networks in its manufacturing sites to handle some processing chores once supported by the headquarters mainframe, saving time and reducing costly CPU cycles. The new internet is also easier to manage and more reliable than the firm's previous network of point-to-point leased lines that linked manufacturing sites with the headquarters here.

"Once we got this system up, it has been ultrareliable," said Lavern Payne, director of technical and operations services at Adams-Millis. "It's really a big improvement."

In the past, dumb terminals at the manufacturing sites were linked to a Nixdorf Computer Corp. mainframe at corporate headquarters. The mainframe was used to track the flow of materials within manufacturing plants throughout the production process. If the remotes sites lost contact with the mainframe, manufacturing would grind to a halt.

"We were very vulnerable because if we lost a line, some of our plants literally began to wind down production within four hours," Payne explained.

The new network, which cost less than $27,000 per site to install, comprises personal computers on 14 token-ring LANs, each wired to a Proteon, Inc. Series 70 Intelligent Wire Center hub. The Series 70s enabled Adams-Millis to utilize a mix of fiber-optic and shielded and unshielded twisted-pair wiring to move data between shop floors and offices without interference, Payne said.

The LANs are then linked via Proteon's P4100+ bridges to three regional Proteon CNX 500 routers, which pass traffic to two IBM Application System/400 minicomputers at headquarters over two 56K bit/sec links (see graphic, this page). Payne said AS/400s replaced the mainframe after Nixdorf left the mainframe business and could no longer provide support.

The new setup gives each manufacturing site at least two paths to headquarters, significantly increasing the net's reliability.

(continued on page 15)

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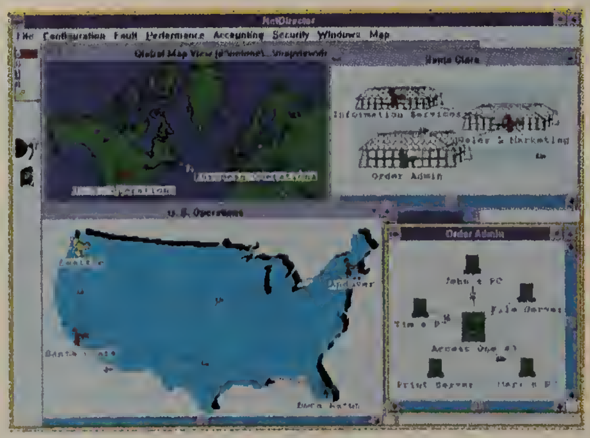
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Circle Reader Service #112

Network gives user improved control

continued from page 13

Besides supporting applications that manage the flow of materials through each plant, Payne said the new net is also used to handle payroll. Each site's payroll is collected and validated on the local LAN. That data is then periodically sent to the AS/400, which aggregates it, processes the payroll and produces management reports. Previously, all payroll functions were performed on the host.

Management gains

The new network also improves net management, according to Payne. Adams-Millis' information systems staff consists of Payne, one full-time and one part-time employee. "If there's trouble, we can only be at one place at a time," he said.

Under the old setup, there was virtually no way to monitor the remote sites from headquarters. If a problem occurred, an employee would have to go to the site to determine the cause.

Now the entire network can be easily managed from headquarters, Payne said. Adams-Millis utilizes Proteon's OverView network management system at headquarters, which controls the bridges and routers, and Proteon's TokenView management system, which manages the token-ring adapters and LANs at each remote site. TokenView passes alerts and alarms from the LANs to OverView, which graphically displays all status changes in the entire network in real time.

Payne said the new setup makes network management possible on many levels. If an outage occurs at a remote site and the wide-area network link is still available, the firm can perform in-band diagnostics to determine the source of the problem.

It is also possible to dial in to the remote location's TokenView management console via a 3.4K bit/sec modem and see from the central site what is on that remote console. If the LAN is down, OverView can also dial in to the individual wiring hubs at each site to find the cause of the problem.

Once the problem has been diagnosed, Payne said he can delete a faulty token-ring connection by issuing commands from the central management console.

"At that point, the ring should come back up by itself," he said. "Then we can send somebody out to change that network interface card or whatever was causing the problem. But at least you have the majority of your users up and running."

Payne said Adams-Millis this month plans to beta-test a new product from Proteon, called OneView, that will combine the features of OverView and TokenView. While Payne currently needs to dial in to the TokenView console in order to view token ring-related problems, OneView will enable him to manage the entire network, including bridges, routers, wiring hubs, adapters and LANs, from a central console. The TokenView consoles at each site would no longer be required. ◪

LANNET unveils LocalTalk for hub

continued from page 13

The LE-20R is a plug-in card for the MultiNet hub that supports the IEEE 802.3 Fiber Optic Inter-Repeater Link (FOIRL) standard for running Ethernet over multimode fiber using asynchronous signaling. The module has two ports and can also be managed by MultiMan. It costs $945.

The third fiber module, the LE-20S, is a dual-port fiber module that is compatible with the IEEE 802.3 draft 10Base-F standard for running Ethernet over single-mode fiber. It can also be managed by MultiMan. Available now, it costs $3,295.

LANNET also announced an eight-port LocalTalk concentrator module for the MultiNet hub. The LLT-8 module enables interconnection of Apple Macintoshes, printers, servers and other devices over LocalTalk LANs using twisted-pair wiring. Available now, it costs $895. ◪

Link Notes

continued from page 13

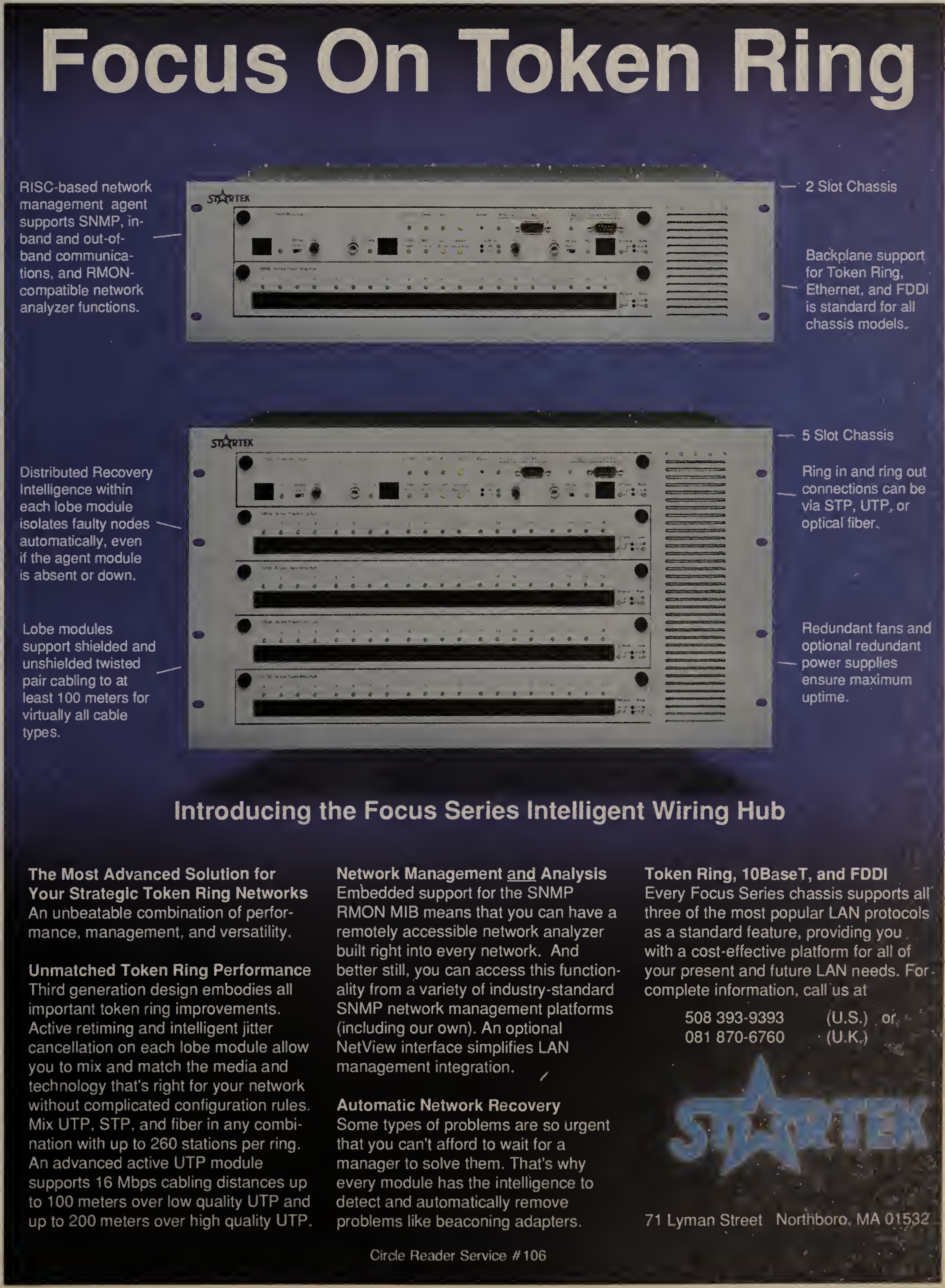
that doubles the number of Ethernet local-area networks its multiprotocol bridge/routers can support.

The Quad Ethernet Link Module increases the total number of Ethernet ports from eight to 16 on the vendor's four-slot Link Node and Backbone Link Node bridge/routers, and from 26 to 52 on its 13-slot Concentrator Node and Backbone Concentrator Node bridge/routers.

Until now, Wellfleet offered only single- and dual-port Ethernet Link Modules.

The Quad Ethernet Link Module is available now. Pricing varies depending on configuration.

For more information, contact Wellfleet at (617) 275-2400. ◪



Focus On Token Ring

RISC-based network management agent supports SNMP, in-band and out-of-band communications, and RMON-compatible network analyzer functions.

2 Slot Chassis

Backplane support for Token Ring, Ethernet, and FDDI is standard for all chassis models.

Distributed Recovery Intelligence within each lobe module isolates faulty nodes automatically, even if the agent module is absent or down.

5 Slot Chassis

Ring in and ring out connections can be via STP, UTP, or optical fiber.

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Automatic Network Recovery
Some types of problems are so urgent that you can't afford to wait for a manager to solve them. That's why every module has the intelligence to detect and automatically remove problems like beaconing adapters.

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GLOBAL SERVICES

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Worth Noting

Total revenues from Integrated Services Digital Network-compatible customer premises equipment sales will grow from $4.83 billion in 1991 to $7.38 billion by 1995, according to a recent report by Market Intelligence Research Corp. in Mountain View, Calif.

Regulatory Update

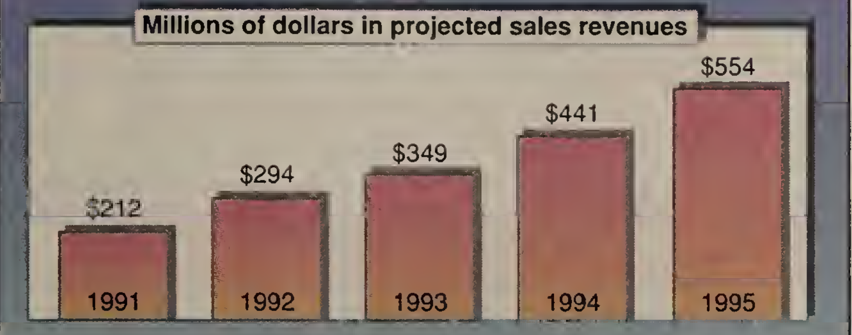
The 39 investors in the **Trans-Atlantic Telecommunications-9 (TAT-9)** fiber-optic cable turned up service on the new facility last week. TAT-9, which can handle 80,000 voice calls simultaneously, almost doubles the capacity of fiber cables in the Atlantic.

TAT-8, the first transatlantic fiber cable, is owned by a consortium of carriers and can handle 40,000 calls simultaneously. Private Trans-Atlantic Telecommunications-1, the second such fiber-optic cable, can handle 85,000 calls simultaneously. Cable & Wireless PLC and US Sprint Communications Co. each own half of the cable.

TAT-9, whose major owners are AT&T, British Telecommunications PLC, Teleglobe Canada, France Telecom and Compania Telefonica Nacional de Espana, already has customers on-board. TAT-10, in which AT&T is also an owner, will be turned up later this year, quadrupling the transatlantic fiber cable capacity available prior to 1992.

Carriers were split on the whether the abundance of fiber capacity in the Atlantic will drive prices down. ☎

The outlook for predictive dialers



Predictive dialers – devices that continually dial numbers from on-line lists and pass live calls to call center agents – are widely used for telemarketing, collections and customer service applications.

GRAPHIC BY SUSAN J. CHAMPENEY

SOURCE: TERM SYSTEMS, CONCORD, MASS.

MCI lands international deal with U.S. government

Contract could be worth $100 million over 5 years.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — MCI Communications Corp. recently won a significant chunk of the federal government's telephone business when it was awarded a contract for all federal agencies' international traffic.

Until now, MCI has been virtually shut out of the government market because almost all telephone service was tied up in the Federal Telecommunications System (FTS) 2000 contract. MCI was a losing bidder on that contract, which was split between AT&T and US Sprint Communications Co. in December 1988.

Since then, MCI has logged numerous protests against the FTS 2000 contract and even mounted a campaign on Capitol Hill last fall urging lawmakers to allow agencies to abandon the FTS 2000 network in certain circumstances.

Although MCI has made few inroads in prying open FTS 2000, the government has now awarded the carrier its International Switched Voice Services (ISVS) contract to carry all of the federal government's international traffic.

MCI beat out AT&T for the contract. Last week, AT&T said it was considering its options and would not rule out a protest of the MCI award.

If MCI retains the deal, it would be a huge coup for the carrier, considering that AT&T currently carries at least 70% of the federal government's international traffic, according to a source at the General Services Administration, which oversees FTS 2000. MCI officials say AT&T's share of the international federal market is closer to 95%.

"It's a significant piece of business for us and a strategic win because it says international service is no longer the private domain of AT&T," said Jerry Edgerton, vice-president of government systems at MCI.

MCI estimates the value of the contract at about $100 million over five years. One reason the value is unclear is because, unlike FTS 2000, ISVS is not mandatory for federal agencies.

Although voluntary use of ISVS may cause a somewhat greater risk for MCI, Edgerton said the carrier is happy with the arrangement. MCI is critical of the mandatory use requirement of FTS 2000, claiming that the deal gives AT&T and US Sprint no incentive to keep quality high or prices low.

"It looks like [ISVS] corrected all the ills of FTS 2000," Edgerton said. "It's not mandatory, so it's incumbent on us to get agencies to use the service and provide the best quality service."

Five agencies — the Navy, Air Force, Department of State, Department of the Treasury and GSA — have indicated an interest in MCI's ISVS offering, he added.

Last week, MCI said the federal agencies will pay an average of about 25% less than what they currently spend. MCI claims that the savings stem primarily from volume discounts and lower rates offered by the carrier.

ISVS is a two-year deal with an option for three one-year renewals. MCI will carry traffic to more than 213 locations worldwide. ☎

Bank calls on WilTel for voice outsourcing

WilTel Communications takes over Continental Bank's telecommunications staff and operations.

By Bob Wallace
Senior Editor

CHICAGO — Continental Bank Corp. last week announced a five-year outsourcing deal under which WilTel Communications System, Inc. will take over a portion of the bank holding company's voice-related network operations.

Under the agreement, the WilTel unit will handle voice services for Continental Bank's headquarters and six other sites here, according to John McIntosh, vice-president of WilTel Communications' network services group.

In addition, Continental Bank will transfer its 20-person telecommunications staff to the WilTel unit, which has also agreed to purchase the bank's existing telecommunications assets, including customer premises telephone equipment.

WilTel Communications will serve as the interface between Continental Bank and local and long-haul carriers. The bank uses AT&T 800 service and US Sprint Communications Co. private-line services. The unit will handle such tasks as ordering circuits and trouble management.

"Through the WilTel [Communications] agreement, we can tap into the expertise and product development skills of a leading specialist firm, freeing us to focus our resources on the banking needs of corporate customers," said William Minihan, chairman of Continental Bank's technology oversight group.

Financial terms of the agreement were not disclosed.

In recent years, Continental

(continued on page 18)

NIUF unveils list of most wanted ISDN applications

By Ellen Messmer
Washington Correspondent

HUNTSVILLE, Ala. — During its recent meeting here, the North American ISDN Users Forum (NIUF) unveiled a list of the most wanted Integrated Services Digital Network applications.

Telecommuting, videoconferencing, multipoint screen sharing and customer service call handling were the top four priority applications on a list of 17, according to the survey.

The findings may have an impact on future ISDN services, as Bell Communications Research has indicated interest in supporting the applications in future iterations of its long-range National ISDN plans.

National ISDN, supported by a broad array of carriers and equipment vendors, is intended to eliminate the interoperability problems that plague ISDN today and lead to the rollout of uniform service applications. The research consortium has already released National ISDN 1, a set of equipment and service specifications for ISDN Basic Rate Interface (BRI), expected to be implemented by vendors this autumn.

National ISDN 2, a set of specifications targeted for release by year end, will focus particularly on ISDN Primary Rate Interface (PRI) and private branch exchange requirements. It will also specify services, which are likely to include call-by-call service selection, a feature that allows customers to use the same link in order to access different types of services.

> National ISDN is intended to eliminate the interoperability problems that plague ISDN today.

▲▲▲

Although National ISDN 3 will

(continued on page 18)

NIUF unveils list of ISDN applications

continued from page 17

not be finalized until 1993, Bellcore is already soliciting input from users, carriers and customer premises equipment vendors concerning which service features should be added in order to broaden the scope of the National ISDN project. At their meeting here, the NIUF completed and approved the wish list of applications and supporting services that members consider top priorities for ISDN 3.

"This is what users want for National ISDN 3," said Karl Schohl, staff project engineer for General Motors Corp.

Videoconferencing backed

The National Institute of Standards and Technology (NIST), the secretariat for the NIUF, last fall asked NIUF members to evaluate more than 100 ISDN applications that NIUF members have written in the course of the forum's work.

NIST asked members, which include both users and vendors, to choose the applications they considered most important. The top four applications garnered more than 145 votes each.

One finding — the popularity of videoconferencing — surprised both Bellcore and NIUF because the forum had left its videoconferencing application unfinished. However, after receiving the survey results, the NIUF decided to renew the work on videoconferencing and give it immediate attention.

Schohl said the NIUF last week also released a list of specifications outlining the services needed to support the forum's top 17 applications. Those services included caller identification, call conferencing, call forwarding and other features for BRI bearer services.

Schohl also supplied a list on behalf of the NIUF specifying the necessary BRI attributes needed to support those applications, which included passive bus configuration, Nx64K bit/sec channel selection useful for multiline dial-up in videoconferencing, and efficient billing and security.

A similar list for PRI was released, as well, which specified similar attributes and the added ability to establish 384K, 1.536M and 1.544M bit/sec channels as well as perform nonfacility-associated signaling to control multiple PRIs.

Robin Rossow, Bellcore technical staff member, promised that his firm would review the NIUF's wish list carefully as plans are finalized for National ISDN 3. ◻

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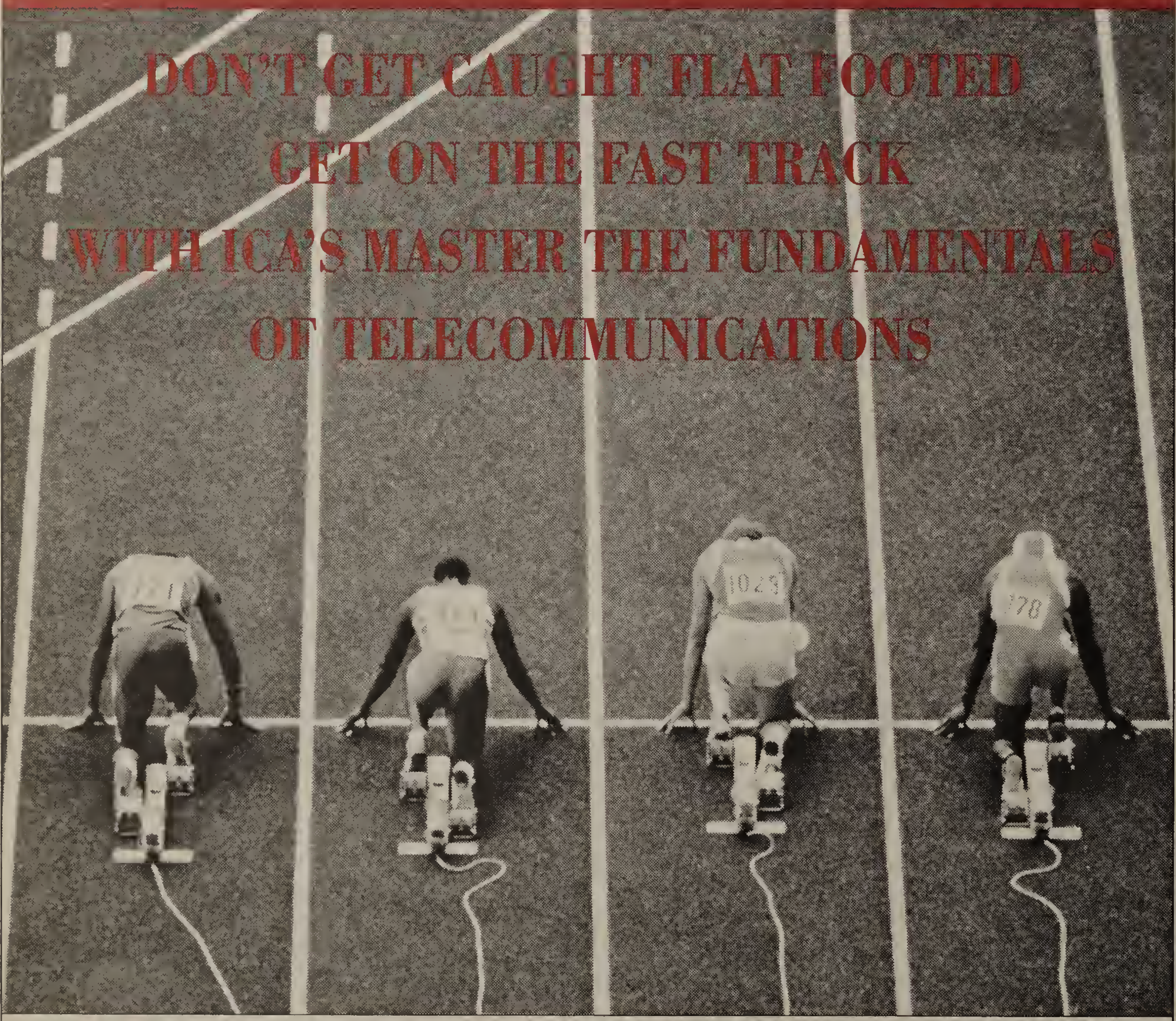
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Bank calls on WilTel for voice outsourcing

continued from page 17

Bank, based here, has structured similar alliances for information technology, properties management and legal services. The bank has signed a 10-year agreement with IBM, which runs the bank's data center.

The outsourcing deal calls for WilTel Communications to improve existing telecommunications service levels, reduce current and ongoing operating costs and "provide enhanced access to current and evolving technology," said a Continental Bank spokesman. "We've got the best of both worlds. We retain [the services of] our talented staff and lock in our telecommunications expenses for five years."

> "We retain [the services of] our talented staff and lock in our telecommunications expenses for five years."
>
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Under the deal, WilTel Communications will reduce Continental Bank's telecommunications expenditures by 20% in the first year and maintain expenses at the lower level for the following four years, McIntosh said.

The spokesman said Continental Bank's telecommunications staff, which is now employed by the WilTel unit, "will play an essential role in the transition and restructuring of the bank's telecommunications operation." The bank will continue to use Centrex service provided by Illinois Bell Telephone Co. at its world headquarters in Chicago, and IBM will continue to manage its wide-area network.

Parent company WilTel, which operates a national 30,000-route-mile digital microwave and fiber-optic network, will not provide net services. The company provides end-to-end network services, communications equipment, and facilities management and maintenance. WilTel has sales and service offices in more than 100 U.S. cities. ◻

ENTERPRISE APPLICATIONS

CLIENT/SERVER AND ENABLING SOFTWARE: DISTRIBUTED DATABASE, MESSAGING, GROUPWARE AND IMAGING

Worth Noting

University College in London has developed X.500 directory service software, called Quipu, which is available at no cost through the Internet. The word "Quipu" is also the name of a cord with multicolored, knotted strings attached that ancient Peruvians used to record events.

Store & Forward

Digital Equipment Corp. recently announced a new software package and systems integration service that enables users to extract data from IBM hosts and integrate it into software running on DEC VAX minicomputers managing EDI applications.

Wayne Toye, DEC's electronic data interchange services marketing manager, said DEC will install its new HostBridge software on IBM mainframes equipped with the MVS operating system.

HostBridge extracts data from batch applications running on the mainframe and transmits it over a variety of network links to DEC/EDI software running on a VAX minicomputer.

The software integrates the data into an electronic purchase order, invoice or other EDI document and uses a variety of net services to transmit the EDI document to a company's trading partners. Toye said DEC has hundreds of DEC/EDI users, dozens of which want to integrate data from IBM mainframes into DEC/EDI software on a VAX.

Toye added that DEC plans to release HostBridge versions for other platforms in the near future.

The North American Directory Forum in a nutshell

Founded: April 1990

Mission:

To cooperate in the establishment of public directory services based on CCITT X.500 Recommendations and accelerate the implementation of X.500 directory services in North America.

Current membership:

- AT&T
- Bell Atlantic Corp.
- Bellcore (representing U.S. West, Inc.)
- BellSouth Advanced Networks, Inc.
- BT North America, Inc.
- Canada Post
- DirectoryNet, Inc.
- GE Information Services
- IBM
- MCI Communications Corp.
- Pacific Bell
- Performance Systems, Inc.
- Southwestern Bell Corp.
- Sprint International (division of Sprint Corp.)
- U.S. Postal Service
- Ziff Communications Co.

GRAPHIC BY SUSAN J. CHAMPENEY

SOURCE: RAPPORT COMMUNICATION, WASHINGTON, D.C.

VORTEX products provide access to diverse databases

Trifox tools also increase application performance.

By Timothy O'Brien
West Coast Bureau Chief

SAN MATEO, Calif. — Trifox, Inc. recently introduced a suite of products that allow applications to transparently access multiple SQL relational databases and older host-based hierarchical data managers.

The VORTEX products — including compilers, database and network protocol interfaces and a performance optimizer — allow users to tailor new or existing applications to work with multiple databases. In addition, the products boost application performance.

"VORTEX is the software glue, providing a common framework in which disparate applications can be developed, accessed and ported, regardless of the platform, with significant performance gains," said Richard Bassin, vice-president of marketing at Trifox.

The VORTEX products can be implemented in either a client/server or terminal/host configuration. In a client/server model, VORTEX-compiled applications run on the client machine and access multiple database servers via the network. For terminal/host environments, the VORTEX products run with the recompiled application on the host computer.

The products are based on a three-tier architecture. At the first level is the compiled application. It is necessary to recompile applications using VORTEX's set of third- and fourth-generation language compilers in order to take advantage of the features provided through the other VORTEX products.

At the next level is the VORTEX Interface, which provides read/write access to various databases and access to multiple network types through support for a variety of protocols. Net protocols supported include the Transmission Control Protocol/Internet Protocol, IBM's Network Basic I/O System, Digital Equipment Corp.'s DECnet and X.25.

Databases supported include Oracle Corp.'s database, Sybase, Inc.'s SQL Server, The ASK Companies' Ingres Intelligent Database, Informix Software, Inc.'s OnLine, DEC's Rdb and Hewlett-Packard Co.'s ALLBase.

Legacy data managers supported at this time include HP's TurboIMAGE.

At the third level is the VORTEX Accelerator, which boosts performance through more efficient management of certain database server functions. The product streamlines transaction processing and optimizes available memory at the database server, enabling an application to run faster and accommodate more users.

VORTEX products, many of which Trifox developed as separate components, are available now and run on all major Unix platforms, DEC's VMS, OS/2 and DOS. Pricing ranges from $5,000 to $100,000, depending on configuration.

NADF testing X.500 directory services

Vendor group initiates first pilot test involving providers of commercial messaging services.

By Barton Crockett
Senior Editor

WASHINGTON, D.C. — A group of 16 top vendors has launched the first pilot test of X.500 directory services for commercial messaging services.

The North American Directory Forum's (NADF) pilot test is intended to fine tune the software and net technology needed to link X.500-based electronic directories used by competing message service providers.

Currently, the only other pilot test of public X.500 directory services is being conducted by the Internet. But the Internet trial is only for academic users and institutions that do not provide services on a commercial basis.

NADF members hope to use the X.500 technology developed in the pilot test to create a global directory containing electronic mail addresses, telephone numbers and other information about users worldwide.

"The idea is that you will be able to plug in to this global information resource that's got all kinds of things you can find out by querying different parts of it," said Ted Myer, NADF cochairman and principal of Rapport Communication, a network consultancy in Washington, D.C.

X.500 is an emerging CCITT standard that defines how electronic directories should be structured and how they should query each other over a net to obtain information requested by a user.

The NADF is a vendor consortium founded in 1990 that currently has 16 members, including AT&T, BT North America, Inc., IBM, MCI Communications Corp. and Sprint Corp. (see graphic, this page).

Myer said the NADF's X.500 pilot test commenced informally in January when two of its members equipped computers with X.500-based directory service software called Quipu, which was developed by researchers at University College in London. Myer declined to name the members involved in the pilot test.

Myer said he is not sure whether the vendors have linked their X.500 directories. But if the directories are not yet linked, they soon will be, he said.

At least four other NADF members will bring X.500-based directories on-line over the next few months. Myer cautioned, however, that it will be at least a year before any of the members begin providing X.500 directory services on a commercial basis.

In the pilot, the vendors plan to test several configurations of X.500 directory service software to determine how they perform in a commercial environment.

The software currently being tested by NADF and the Internet consists of two components. One is a Directory User Agent (DUA), which runs on a user's personal computer and requests listings from a central directory. The second component, the Directory System Agent (DSA), is host-based software that manages the central directory.

According to Myer, directory information requests are carried between DUAs and DSAs using public Transmission Control Protocol/Internet Protocol facilities on the Internet and public X.25 packet-switched nets.

A key technology being evaluated in the pilot test is the central administrator, which is software running on a central host that makes sure each DSA in an X.500 network knows what listings the other DSAs contain.

The central administrator does this by receiving periodic directory listing updates from DSAs. It then extracts information from each DSA summarizing the location of information across an X.500 net. This information is retransmitted back to all DSAs on an X.500 network to help them satisfy requests for information on remote DSAs.

The central administrator is not defined in the current or 1988 version of the CCITT X.500 standards, so NADF had to design one. Myer said that users will eventually link private directories to X.500-based public directories, once the Consultative Committee on International Telephony and Telegraphy defines security features for limiting access to sensitive information.

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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS, ALLIANCES AND FINANCIALS

Worth Noting

"Cisco [Systems, Inc.] and Wellfleet [Communications, Inc.] are running away with the router market and charging large premiums."

Todd Dagres
Director of data communications research
The Yankee Group
Boston

People & Positions

The **Network Management (NM) Forum's User Advisory Council** recently annouced the following new officers:

Ron Scott, section head of telecommunications operations at Ontario Hydro, has been named chairman of the User Advisory Council. He succeeds **Bruce Morell**, consulting engineer at Electronic Data Systems Corp., who will now serve as vice-chairman.

Fran Nielsen, manager of the net management group at the National Institute of Standards and Technology, has been elected secretary.

The council is a group of large net users that advises the NM Forum and vendors dedicated to building interoperable net management products.

Adding to the list of top **IBM** officials that have recently left the company, **William Grabe**, a vice-president and general manager of U.S. marketing and services for IBM, last week announced his plans to retire effective March 31.

Grabe, a 30-year IBM veteran, will become a special partner of General Atlantic Partners, a private investment firm with offices in New York and Greenwich, Conn. IBM does not plan to name a replacement for Grabe. ◼

Good news, bad news for National ISDN 1

The good news is that the following vendors have promised to deliver National ISDN 1-compliant customer premises equipment by this fall:

- Apple Computer, Inc.
- Ascend Communications, Inc.
- AT&T
- DGM&S, Inc.
- Fujitsu America, Inc.
- GPT Video Systems
- Hayes Microcomputer Products, Inc.
- IBM
- NEC America, Inc.
- Northern Telecom, Inc.
- Siemens Stromberg-Carlson
- Telrad Telecommunications, Inc.
- Universal Data Systems, Inc.

But the bad news is that 100 vendors recently identified the following National ISDN 1 trouble spots:

- Requirement that each National ISDN 1-compliant terminal must be programmed, or initialized, before it is hooked up to an ISDN service
- Lack of suitable facilities to test National ISDN 1 equipment for compatibility
- Lack of information from carriers on where National ISDN 1 switches will be deployed

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: *NETWORK WORLD*

National ISDN 1 raises new issues for users, industry

Complex input requirements could be problematic.

By Ellen Messmer
Washington Correspondent

HUNTSVILLE, Ala. — Customer premises equipment vendors have attacked Bell Communications Research's National ISDN 1 specification, claiming it will create headaches for both users and vendors.

At the recent National ISDN CPE and Application Developers Workshop, hosted by Bellcore, customer premises equipment vendors complained that Bellcore's decision requiring National ISDN 1 terminals to be initialized when first used will saddle users with complex input requirements.

"[The concept of] National ISDN is a good thing," said Lauren May, director of marketing for Petaluma, Calif.-based Telenetworks, Inc. "[But it will bring] a lot of pain for everyone."

Telenetworks, which supplies software for equipment makers such as Ascend Communications, Inc. and Rockwell International Corp., was among the nearly 100 vendors in attendance at last week's industry meeting.

May noted that Integrated Services Digital Network equipment built to conform to National ISDN 1 — which is intended to ensure service and equipment interoperability — will require users to set their terminals to specific parameters through an initialization procedure when they order ISDN Basic Rate Interface services from the local exchange carriers.

In contrast, many ISDN terminals today are preset because they are expected to be used within a specific environment.

Equipment based on National ISDN 1 specifications will require users to receive a Service Profile Identifier (SPID) from local carriers for each telephone or terminal. Users will have to set the calling features — such as call waiting, call transfer or caller identification — for each phone when ordering service from a local Bell company.

National ISDN 1 equipment will not interoperate with today's ISDN equipment unless it is modified through software or hardware upgrades supplied by the vendor.

According to Stan Kluz, data communications engineer at Lawrence Livermore National Laboratory and chairman of the California ISDN Users Group, ISDN should be simple and invisible to the user. "A few ISDN experts know what SPID is about, but you take the average Joe Blow and he doesn't even know what ISDN is about."

Although equipment initialization might be complicated, "after we start using it, we'll see how much of a headache we'll have," he said. Despite the complexity, Kluz is optimistic that National ISDN 1 will spur greater availability of ISDN technology and equipment.

The National ISDN 1 project was launched a year ago when AT&T, Northern Telecom, Inc. and Siemens AG agreed to implement a common version of ISDN

(continued on page 22)

ANSI narrows choice on FDDI-over-copper

Technology for new standard now down to two proposals from Crescendo, Cabletron-Nat Semi.

By Bob Brown
Senior Editor

AUSTIN, Texas — The recent ANSI decision to whittle down the choice for an FDDI-over-copper standard to two technologies could result in a draft standard by year end, according to proponents of both technologies.

No matter what ANSI decides, a spate of products supporting the proposed Fiber Distributed Data Interface-over-copper technologies will likely be rolled out this year. Vendors in each camp pledge to provide upgrades where necessary to address the chosen standard.

At the most recent meeting of the ANSI X3T9.5 FDDI Physical Media Dependent Work Group here, it was decided that the final standard would be based on a joint proposal from Cabletron Systems, Inc. and National Semiconductor Corp. or a second proposal from Crescendo Communications. The decision is expected in April.

Given that it will take time to collect and address comments from ANSI work group members regarding the chosen technology, the earliest that a draft standard could be approved would be in December, with the full standard completed sometime next year, vendors said.

Two approaches

The two technologies, which are designed to support FDDI's 100M bit/sec speed over both shielded and data-grade unshielded twisted-pair wire, will be tested head-to-head by Hewlett-Packard Co., which will present its findings at the April meeting.

"There is a sense of urgency to get things done," said Buck Gee, director of marketing at Crescendo, a maker of FDDI gear based in Sunnyvale, Calif.

Supporters of each technology are confident that their proposal will be chosen.

Crescendo recently rolled out adapter cards and a local-area network hub incorporating its

(continued on page 23)

INDUSTRY BRIEFS

Unisys gets jump on OSF technology. Unisys Corp. recently joined the Open Software Foundation, Inc. (OSF) so the company could influence and benefit from early access to it. Prior to joining the group, Unisys had been a licensee of OSF's Motif, which it used as the basis for its Primary Graphical Environment, the graphical user interface for the Unisys U Series servers.

AT&T to ink deal with French company. AT&T has agreed to buy Dataid, a French software and information services company, for $88 million, pending approval by French regulatory authorities.

Dataid provides software design and facilities management services primarily in the French market.

Fleet Call joins mobile radio group. Fleet Call, Inc. has joined the Digital Mobile Network Roaming Consortium, a group formed last January by mobile radio operators to create a seamless digital network in the 800-MHz to 900-MHz range for voice and data services.

Fleet Call said its service areas include Chicago, Dallas, Houston, Los Angeles, New York and San Francisco. Other members include American Mobile Systems, Inc., CenCall, Inc., Dispatch Communications, Inc. and Transit Communications.

(continued on page 23)

Firms to develop desktop video unit for business

By Bob Brown
Senior Editor

PictureTel Corp. and Siemens Private Communication Systems (SPCS) recently announced they are developing a business videophone designed to work with conventional videoconferencing systems.

While PictureTel has previously described efforts to deliver desktop systems based on personal computers, the videophone will be aimed at office staff who do not have PCs but could still benefit from videoconferencing.

PictureTel and SPCS, a subsidiary of Siemens AG of Germany, will demonstrate a prototype of their business videophone at the Hannover Fair CeBIT in Germany later this month, according to Robert Mitro, vice-president of sales and marketing at PictureTel.

Under the agreement, PictureTel is providing the video and audio technology and SPCS is developing the telephony-related components. Details on pricing or availability were not released.

The basic product is expected to be an Integrated Services Digital Network-based telephone with an integrated screen, camera and microphone. The prototype will feature an outboard box that will include a coder/decoder and other components, including audio mixing and network interface features. PictureTel is waiting on the delivery of a new video processing chip from Intel Corp. that will enable PictureTel to shrink the components of its desktop system.

The idea behind the videophone is to make the product work using a common telephone keypad.

The videophones will work with ISDN private branch exchanges and public digital networks at 56K and 128K bit/sec.

The phones — of which, several variations are planned — will support the CCITT's Px64 standards, making them compatible with PictureTel's installed base of room videoconferencing systems and other systems that adhere to the Px64 standards.

The PictureTel-SPCS videophones will differ from those AT&T recently announced for the mass market in that the former use digital transmission facilities, which is said by observers to deliver a better picture, and the latter — based on technology from Compression Labs, Inc. (CLI) — use analog links.

CLI hopes to build volume in the home market, which would enable it to make videophone components less expensively and get into the business videophone market when prices are attractive, said John Walsh, CLI's senior vice-president of planning and strategy.

Tim McElgunn, an associate analyst at Datapro Information Services Group, a market research firm in Delran, N.J., said pricing will be a key factor in the success of business videophones. However, business videophones probably will not be attractive to many users unless they are priced at around $500 or less, he added. ☐

National ISDN 1 raises new issues

continued from page 21

to eliminate interoperability problems.

Bellcore later issued a set of specifications so vendors could build interoperable ISDN customer premises equipment.

Greg Ratta, Bellcore's director of ISDN data communications, said each of the switch vendors had competing views, but the decision to require terminal initialization was reached through consensus as a way to ensure interoperability in the first stage of the National ISDN 1 initiative.

But some vendors blasted the decision, saying National ISDN 1 should include noninitialization of terminal equipment as an option. "SPID is a horrible concept. There's no reason for telephones to have such a thing," said Ron Kunzelman, senior engineer in systems planning for Rolm Systems.

"As private branch exchange manufacturers, we didn't have a voice in this," he added. "Bellcore owns the pen and does all the writing. Noninitialized terminals should be supported. Kunzelman called for Bellcore to support a "default service profile identifier" that would eliminate the need for initialization.

Bellcore's Ratta said the future direction of National ISDN 1 will include the default profile, but it will not appear in the National ISDN 2 specifications scheduled for release by the end of the year. National ISDN plans will eventually include support for both noninitialization and initialization terminals. ☐

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ANSI narrows choice on FDDI-over-copper

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technology. National is beginning beta tests of its FDDI-over-copper chipsets, and Cabletron is plotting to use those chips in its new FDDI gear scheduled to ship this fall.

According to Bill Clark, Cabletron's FDDI product manager, the two proposed technologies are fairly equal with regard to performance. One difference is that Cabletron-National's calls for precompensation, a digital method of separating the data signal from line noise, while Crescendo is backing a digital and analog postcompensation technique.

Different encoding schemes

Another difference is that Cabletron-National's proposal calls for a two-level signal encoding technique called Non Return to Zero Inverted (NRZI), while the Crescendo plan uses a three-level MLT-3 technology.

Encoding schemes are used to condense data signals into lower frequencies to reduce electrical emissions, a concern when running a 100M bit/sec signal over copper wire.

According to Clark, the Cabletron-National proposal is less expensive for vendors to implement, which means that FDDI products can be sold for less, an important consideration given the technology's current high pricing.

The more complex Crescendo technology, which uses an extra level of encoding and requires analog filters at the receiving end of a transmission, can be costly to implement and test during the manufacturing process, Clark added.

"We think our approach is very straightforward," he said.

However, Crescendo's Gee disputed Cabletron's claim that the two technology proposals provide basically the same performance. MLT-3 provides better noise immunity than NRZI and is a more robust technology, he said.

"There's no argument among members of the work group about which is the better technology," Gee said. "The question is whether the additional benefit derived from MLT-3 and postcompensation is worth the additional complexity and cost in implementation."

Gee said the difference in implementation cost is a matter of only a few dollars.

The Crescendo proposal is being cosponsored by AT&T, British Telecommunications PLC, Fibronics International, Inc., HP and Ungermann-Bass, Inc.

Despite their differences, vendors on both sides said the most important issue is getting a standard approved. "A lot of the technology differences are subtle," said an Ungermann-Bass spokeswoman. "The attitude now is that we've just got to make this happen."

Gang of Five rebuffed

The process has already taken too long for one group of vendors, dubbed the Gang of Five, which last year proposed a standard for FDDI-over-shielded twisted-pair wire, according to a spokeswoman for SynOptics Communications, Inc., a member of that group.

The Gang of Five, which also includes Advanced Micro Devices, Inc., Chipcom Corp., Digital Equipment Corp. and Motorola, Inc., proposed its FDDI-over-shielded twisted-pair proposal in hopes of getting a standard approved sooner, but the decision to go with a standard for both shielded and unshielded twisted-pair wire, in effect, killed the Gang of Five's efforts, the spokeswoman said.

Industry Briefs

continued from page 21

Altech to sell NCR's 3000 line. NCR Corp. has signed a $1.5 million value-added reseller agreement with systems integrator Altech, Inc.

According to terms of the deal, Altech will sell NCR's System 3000 line of computers and peripherals in combination with its own OnLine Financial Software product as a local-area network-based automated teller system to financial institutions.

Compression Labs gets contract. Charlotte, N.C.-based SunHealth Corp. has inked an agreement with Compression Labs, Inc. for an unspecified number of its Rembrandt II/VP videoconferencing systems and multipoint control units.

The contract allows SunHealth members to install systems at their own pace, with the intent of linking all the alliance's members. The first units will be installed in April at SunHealth corporate headquarters in Charlotte.

SunHealth is a group comprising 225 hospitals in 15 states that was formed to identify and develop various health care services.

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Dialogue

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Dick Bretagne
Chief information officer
Northwestern Memorial Hospital
Chicago

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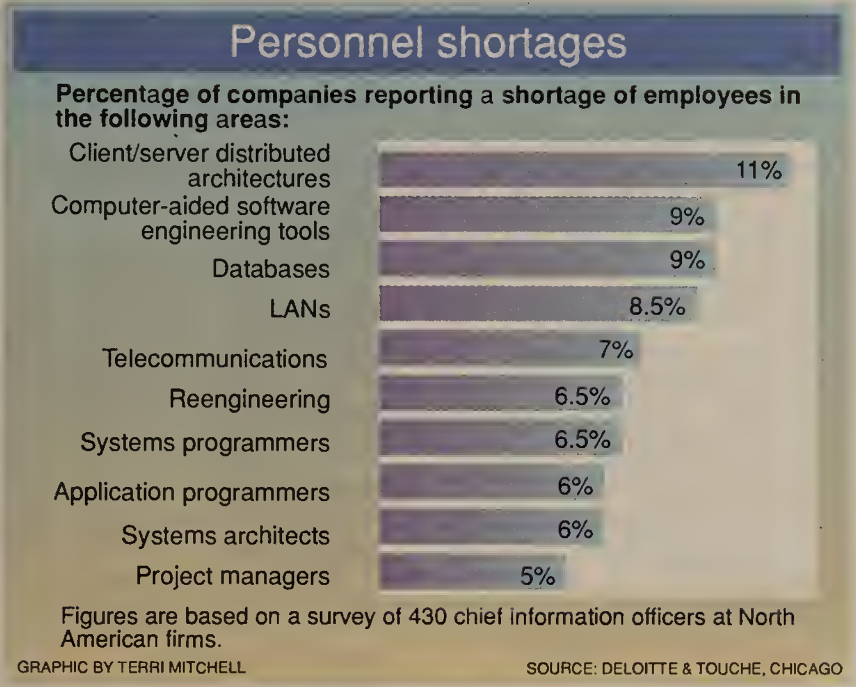
Greg Crosbie
Director of telecommunications
and technology administration
The Journal of Commerce
Phillipsburg, N.J.

"Imaging is something we may pursue at some point in the future, but because of the economy and budgetary restraints we're facing, every discretionary dollar we get is being put toward FDDI."

Jeffrey Lipton
Director of office support and
telecommunication services
University of Colorado
Boulder



Figures are based on a survey of 430 chief information officers at North American firms.

GRAPHIC BY TERRI MITCHELL

SOURCE: DELOITTE & TOUCHE, CHICAGO

Voice mail systems make easy targets for hackers

Net managers often overlook voice mail security.

By Salvatore Salamone
Features Writer

NEW YORK — Voice processing systems are often overlooked when security of a network is considered, yet they can be a Trojan horse, enabling hackers to seize voice mailboxes in order to make long-distance phone calls and disrupt business.

Net managers often use safeguards to protect their data networks and private branch exchanges. But many do not use the same precautions when it comes to voice mail and automated attendant systems, according to a new study titled "Voice Processing System Security: Misuse, Abuse and Fraud Detection and Prevention."

The study, conducted by Tom Fermazin, a senior technology analyst for a major oil company in the Midwest, and Marc Robins, president of Robins Press, a New York research and consulting firm, found that, even though voice processing vendors offer security features, security is typically only considered after an incident occurs.

According to the study, only 16% of the net managers had contacted vendors for information regarding system abuse before they had a problem. Additionally, only 38% were taking adequate precautions against voice processing system misuse, abuse or fraud.

"Securing a voice processing system requires a combination of education and awareness," Fermazin said. "You have to get the message across that it's everybody's job to secure the system."

That philosophy extends beyond changing and protecting passwords.

"Awareness is a big part of system security," Robins said. For example, if users think their voice mailbox has been tampered with, they should report it, he added.

In addition, net managers should watch for situations that indicate abuse. For instance, a long-inactive mailbox that suddenly becomes very active or a large number of calls to one region of the country.

"[Net managers] should use call accounting and telemanagement software in conjunction with their voice processing systems to help detect fraud and misuse," Robins said.

To help net managers increase their own level of awareness, the study includes a guide on how to tell whether a system has been hacked and a 55-point checklist for preventing misuse, abuse and fraud. The study also contains a list of the security features offered with the major voice processing systems on the market today.

"Voice Processing System Security: Misuse, Abuse and Fraud Detection and Prevention," is priced at $395 and can be ordered by writing to Robins Press, 205 Third Ave., Suite 8L, New York, N.Y. 10003, or by calling (212) 614-9842.

Help desks seek new automation tools

Call center managers look to expert systems and ANI to help handle increasing call volumes.

By Wayne Eckerson
Senior Editor

NEW ORLEANS — Network and systems support managers flocked to the recent 1992 International Help Desk Conference here searching for tools and methods to help them handle surging call volumes caused by the proliferation of local-area networks.

To handle more calls without adding staff, support managers are exploring tools, such as interactive voice response (IVR) systems and expert systems, that can either automate call logging and tracking functions or assist operators in tackling difficult problems.

Almost 1,200 users packed a variety of sessions on help desk issues at the third annual conference sponsored by the Help Desk Institute, a nonprofit organization of technical support professionals that has 24 chapters in the U.S., Canada and Australia.

Land of LANs

Network and systems support managers said call volumes have risen dramatically with the advent of LANs, but budgetary restraints have prevented them from adding new staff.

Shirley Hosp, manager of network support at Baxter Healthcare Corp., said the number of calls to Baxter's network support center has exploded with the introduction of LANs. She added that the average call length has risen from between one and two minutes to between five and eight minutes, with many calls taking as long as several hours.

In order to free up staff to tackle the often complex problems that arise in LAN-based computing, support managers are looking for ways to automate the handling of more routine calls.

Target Headquarters, Inc., for example, has an IVR system that resolves 25% of the help desk calls without human intervention, saving the company from hiring four support people, said Gretchen Stout, help desk supervisor at Target's main offices in Minneapolis.

Target's IVR system steps callers through the process of diagnosing and resolving common problems and routes high-priority or difficult problems to in-house technicians.

Representatives from Syntellect, Inc., a maker of IVR systems that exhibited at the show, said companies generally need to receive at least 300 help desk calls a day to justify the cost of an IVR.

Addressing the source

Some network managers are reducing the number of calls at the source by installing wall-mounted LED screens at remote sites to broadcast systems and network availability messages.

The LED screens enable help desks to be proactive in addressing user problems, especially when a major system or network link goes down. This minimizes the number of calls users make to the help desk.

Many support managers believe expert systems can help operators resolve more thorny technical problems. Often, these calls are assigned to in-house experts who are not always readily available.

According to most users, however, the jury is still out on whether expert systems will speed up problem resolution or be easy enough for support staff to use in a fast-paced environment. Several users claim that expert systems can be too time-consuming and expensive to develop and maintain.

Some users are looking into automatic number identification to speed access to personnel and configuration information stored in a help desk database. Currently, most help desk packages require operators to key data into one or more fields in order to bring up information about a caller on a screen, including a history of previous problems. Users said they would like ANI, which is passed with a phone call, to trigger these database lookups.

In addition, users want to hit one key to gain access to other management systems, such as IBM's NetView, in order to check alerts, restart terminals or perform other tasks.

OPINIONS

REGULATORY ISSUES

BY STUART WHITAKER

FCC has dropped the ball in regulating AOSs

To protect consumers from unfair and deceptive practices of some providers in the alternative operator services (AOS) industry, Congress passed the Telephone Operator Consumer Services Improvement Act (TOCSIA). Last November, the Federal Communications Commission issued an interim report claiming that it has vigorously enforced this legislation.

I disagree. The FCC has acted sporadically against a handful of firms that are too small to withstand the regulatory harassment of the federal government.

On Nov. 8, the FCC issued orders announcing its finding that 12 AOS firms were charging unjust and unreasonable rates. Each firm was directed to state at the beginning of each call that its rates are available on request and to prove that its rates are just and reasonable. But it has not been stated in the orders, TOCSIA or the FCC's rules what constitutes just and reasonable rates.

Each of these firms submitted reports that the FCC used to find that unjust and unreasonable rates were being charged. However, the FCC has done nothing about firms that failed to submit these reports. The lesson here is that companies that fully comply with stated requirements are at greater risk than those that do not comply.

> The FCC has failed to enforce the regulations evenly.
>
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On Nov. 25, the FCC released notices that it intended to fine nine AOS firms for failure to file tariffs. But in fact, tariffs for at least three of those companies are currently on file at the FCC. This mistake was compounded by the indifference the FCC displayed to those three firms.

Under TOCSIA, the commission is responsible for developing policy and enforcing regulations, as well as managing and analyzing submitted information. But even the most basic responsibility — keeping track of the information that is under its control — is difficult for the FCC to fulfill. One reason for this is that the commission does not have the adequate resources to maintain that information. During the proceeding to determine the filing requirements, the FCC acknowledged this limitation. In response to a suggestion that the FCC should use previously filed information rather than require multiple submissions of the same information, the FCC said, "The public would [not] be best served by squandering the commission's limited resources in assembling data concerning several hundred providers of interstate operator services."

It appears to me that the notices and orders the FCC has issued to AOS firms were done so to justify the FCC's claims of having vigorously enforced TOCSIA. But the FCC has failed to determine what is just and reasonable, enforce the regulations evenly and carefully analyze the data at hand.

A competitive industry in an international economy that is in the midst of the longest recession since the 1930s cannot afford inefficient regulatory actions. The FCC should find a way to do what needs to be done with the limited resources it has. ◪

Whitaker is president of Whitaker Associates, a consulting firm in Vienna, Va., and publisher of The Operator, *a newsletter for the operator services and call aggregator industry.*

NETWORK WORLD

Editor
John Gallant

Executive Editor
John Dix

Assistant Managing Editor — News
Paul Desmond

Senior Editors
Bob Brown — Industry Update
Barton Crockett — Enterprise Applications
Wayne Eckerson — Management Strategies
Bob Wallace — Global Services

Caryn Gillooly — Local Networking
5423 Gladewright Drive
Centreville, Va. 22020
Phone: (703) 266-1537
Fax: (703) 266-1543

Jim Duffy — Data Net Architectures
115 E. 27th St., #1C
New York, N.Y. 10016
Phone: (212) 481-3095
Fax: (212) 679-0147

Staff Writers
Joanne Cummings — Internetworks
Maureen Molloy — Internetworks

West Coast Bureau
Timothy O'Brien
Bureau Chief/Enterprise Applications
Phone: (415) 771-3530

Margie Wylie
Senior Editor/Local Networking
2088 Union Street, Suite 2
San Francisco, Calif. 94123
Phone: (415) 771-4103
Fax: (415) 771-2817

Washington D.C. Bureau
Anita Taff
Bureau Chief/Global Services
Phone: (202) 879-6744

Ellen Messmer — Industry Correspondent
National Place
1331 Pennsylvania Ave. NW, Suite 505
Washington, D.C. 20004
Phone: (202) 879-6752

Features Editor
Charles Bruno

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Colin B. Ungaro

Director of Financial Operations
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Network World, 161 Worcester Road, Framingham, Mass. 01701
(508) 875-6400, MCI Mail — 390-4868, Fax: (508) 820-3467

USER ADVISORY PANEL

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EDITORIAL

Users' biggest challenges are managerial, not technological

Network World recently commissioned a survey to gauge reader views on downsizing. The findings were dramatic: 97% said they either have downsized or plan to downsize mainframe- or minicomputer-based applications to local-area networks.

But the survey also highlighted something often forgotten in the hype surrounding downsizing. The major challenges users face in downsizing — or any major information systems (IS) effort — are not technological but political and managerial in nature.

For example, when asked about the most difficult aspects of downsizing, users discussed getting upper management to buy into downsizing (in those cases where upper management wasn't actually driving the process), getting IS personnel to accept the change and overcoming resistance from end users.

Some sample comments are:

- "Downsizing [brings] culture shock. It requires refocusing of energies, which is not always welcome."
- "Data processing people are afraid of being terminated, which leads to hard feelings."
- "[The most difficult aspect is] getting users comfortable with the idea of losing the mainframe."

Similarly, readers spotlighted the need for training to get IS personnel up to speed on LAN technologies and end users comfortable with working in a new environment. Respondents also stressed the importance of setting standards for data management and LAN administration.

Vendors, analysts and even the trade press often focus on the quantitative aspects of technology, such as MIPS, packets per second and bandwidth. But far too little attention is paid to the more difficult challenges users face in mobilizing support for major technology initiatives and dealing with the often painful upheavals that such a change brings.

Technology shifts, such as the rapid advances in LANs, serve as a catalyst for change. But success in networking — measured in business gain — is the result of careful planning, insight and the political savvy needed to usher in new ways of using information. ◪

OPINIONS

MACROSCOPE

BY JAMES KOBIELUS

Network managers must take user training seriously

User training is, unfortunately, an afterthought in many network implementations. Network managers will take user training seriously only if it is a factor on which their performance is evaluated.

Therefore, managers should establish training service-level agreements that specify training-related performance guarantees similar to those which many companies have established for technical criteria such as network availability and reliability.

The following concerns should serve as a basis for these agreements:

- To provide training before, but not too far in advance of, system cutover and availability.
- To train all affected users for new system implementations.
- To cover all relevant system features, functions and capabilities in the training program.
- To successfully provide users, through pre- and post-testing, with all required skills and knowledge.
- To help users retain and successfully apply all required skills by performing follow-up surveys and monitoring help-desk inquiries.
- To aid users in maintaining essential knowledge through remedial and refresher training.
- To have technical staff with user contact responsibilities respond promptly and fully to user training and assistance requests.

In addition to these criteria, network managers must establish an integrated user curriculum comprising modular, mutually supporting components. An integrated curriculum is simply a comprehensive list of topics that will be covered by the training program. Such a communications curriculum forces network managers to see the world from the user's point of view, assists managers in determining which system-related skills and knowledge users need and provides a framework for training development activities.

> User training cannot be accomplished once and for all in a single session.
>
> ▲▲▲

Net managers should develop user-training curricula along the following lines:

- **Systems and service offerings.** Once network managers stand back and survey the range of voice, data, facsimile, telex, image and video communications offerings they provide, they will realize the gaps in their current training activities. Imagine the poor users who haven't the slightest idea how to program their speed-dial buttons or retrieve and organize their electronic mail.

The curriculum must serve as the basis for a training resource catalog that provides people with a road map for obtaining the knowledge to actually become users as opposed to mere "wanna-bes."

- **Job requirements.** The curriculum should address different job requirements by such means as creating separate training tracks for managerial, professional and clerical personnel. One job category that deserves its own track is nontechnical personnel who oversee communications purchase requests, service requests, trouble reports and chargeback for a particular user department.

Net managers must improve the assistance they provide to these people, who are generally the primary communications contacts in user departments.

Of course, the user curriculum will never stop changing, given the rapid pace of technological innovation and new system implementations. Network managers must continually revisit the curricula to keep pace with user requirements.

User training must be ongoing; it cannot be accomplished once and for all in a single session. Users are exposed to diverse technologies and operating instructions. Consequently, they are likely to forget or misapply what they were taught. Training must be delivered to users at every stage in the network life cycle, not just at system cutover.

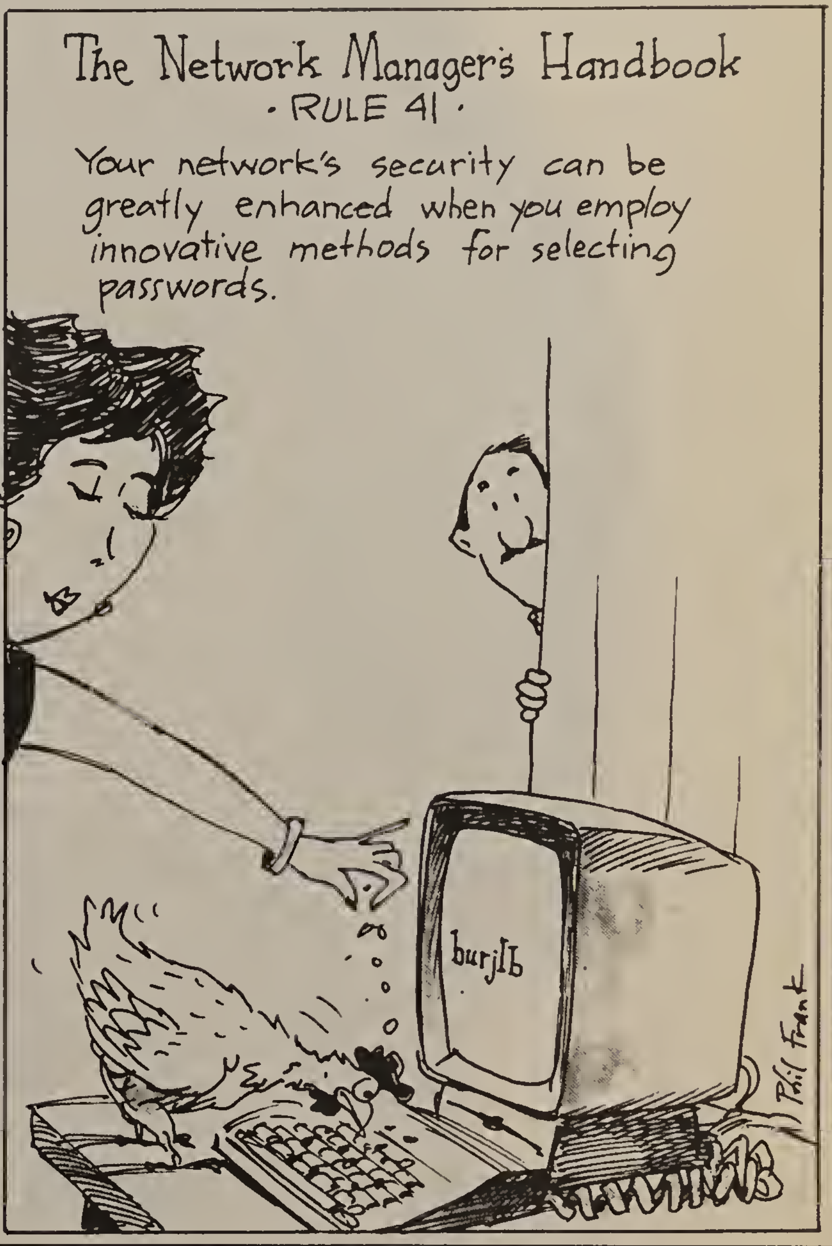
The channels for ubiquitous user training are live courses and user manuals, in addition to communications "open houses," hands-on demonstration centers, user groups, electronic bulletin boards, instructive videocassettes, interactive courseware, newsletters, departmental technical resource personnel and the communications help desk.

Well-managed, comprehensive training programs are a necessity. Network managers are responsible for ensuring that users' awareness and understanding keep pace with the introduction of new systems and services. The consequences of inadequate training are alienated, frustrated and unproductive users. ◘

Kobielus, a contributing editor to Network World, *is a telecommunications analyst with Fairfax, Va.-based Network Management, Inc., one of the largest local- and wide-area network systems integrators in the U.S.*

TELETOONS

BY FRANK AND TROISE


The Network Manager's Handbook
· RULE 41 ·
Your network's security can be greatly enhanced when you employ innovative methods for selecting passwords.
burjIb
Phil Frank

LETTERS

More to frame relay

Perusing the charts that ran with your recent Frame Relay Buyer's Guide (*NW*, Feb. 3) would give users the mistaken impression that all they have to worry about is finding a vendor whose equipment complies with frame relay standards.

Not so. The real strength of standardized frame relay technology is that it provides users with a foundation on which to build customized networks. Vendors compete for users' business by adding value to frame relay-based equipment.

But this value involves a trade-off. Users must weigh the value of strict standards-compliance against the benefits of equipment-specific features. If the only issue was compliance, vendor comparisons would be simple: The vendor either complies or doesn't.

Network World readers would gain a more useful perspective on frame relay compatibility by examining vendor offerings with respect to a checklist of "must-have" features that would accompany the Buyer's Guide.

However, it must be a careful examination, taking into consideration real network needs so that users can determine whether a feature is indeed essential for them.

For example, as the article mentioned, frame relay equipment vendors deal with congestion control in a variety of ways. But the comparison does not mean much. At this early stage in frame relay deployment,

(continued on page 43)

Network World *welcomes letters from its readers.*

Letters should be typed and double-spaced. Mail them to Editor, Network World, *161 Worcester Road, Framingham, Mass. 01701.*

Letters may be edited for space and clarity.

"THERE IS NOTHING I LOVE as much as a good fight!" FDR once said. We feel the same way. Why not stir up some conflict in the industry by writing a column for *Network World?*

Columns should be 600 words in length and submitted on disk, via modem or through MCI Mail at 390-4868.

If you'd like to write a column, call Alison Conliffe, associate features editor, at (508) 820-7416 or fax your idea to us at (508) 820-3467.

* The Bell Atlantic family of companies includes New Jersey Bell, Bell of Pennsylvania, Diamond State Telephone, the C&P Telephone companies and other communications and information management companies. †Long-distance service

All I said was:

“We’re talking VERY SOPHISTICATED data networks here. I’d NEVER consider BELL ATLANTIC.”

Mr. MORLEY GUMPER, *former* DATA MANAGER

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Changing net landscape impacts global hub selection

Pricing flexibility, digital facilities mix and regulatory flux combine to force users to rethink international hub options.

CONTINUED FROM PAGE 1

tional network hub was as simple as assessing where the bulk of the overseas traffic originated — be it in Europe, the Pacific Rim or Latin America — and establishing a hub there.

Agricultural equipment maker Deere & Co., for instance, operates a global private network based on a 128K and 256K bit/sec private line between its headquarters in Moline, Ill., and its European data center in Mannheim, Germany.

The Mannheim hub is linked via digital private lines, typically running at 64K bit/sec, to sales and distribution offices in France, Italy, Spain, Sweden and the U.K. The transatlantic links carry both voice and data traffic, while the European private lines carry mostly data traffic.

Deere's European hub is in Mannheim because that's where the largest quantity of European traffic originates and terminates. But, in theory, the company could locate its European hub in another country.

For example, the company could run transatlantic private lines between its Moline headquarters and its office in France. Deere could then install digital private lines to carry voice and data between the French site and the Mannheim office. This would make Deere's French office the company's primary international hub in Europe.

Because such a configuration would be a revenue boon to France Telecom, the carrier might be willing to offer lucrative concessions for Deere to relocate the hub to France. If Deere made such a move, it would be in the vanguard of users increasingly asking foreign carriers to bid against each other for control of their international hubs.

According to William Coopman, Deere's telecommunications manager, he isn't ready to make that change. Even if Deere saves tens of thousands of dollars annually by moving its hub to France, the company would risk disrupting network operations.

"I guess I'm kind of conservative," he says. "This is still a relatively new concept. I'm going to let a few other people fool with the idea first before I mess with it."

But other users are beginning to aggressively negotiate with multiple carriers when choosing an international hub site.

Continental Grain Co., a $13 billion commodities trading firm headquartered in New York, recently underwent an extensive, competitive bidding process before deciding to locate a European hub in Geneva.

The Geneva hub comprises

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ILLUSTRATION ©1992 RICHARD ELMER

(continued from page 31)

multiplexers on the premises of Switzerland's post, telegraph and telephone administration, the Direction Generale des PTT, that are linked via 64K and 128K bit/sec private lines to muxes at Continental Grain offices in Hamburg, Germany, London, New York, Paris and Rome.

Monthly charge for half of private line to U.S.

Figure 1

Country/Carrier	Bit/sec				
	56K or 64K	128K	512K	1 M	2 M
Western Europe					
Belgium Regie des Telegraphes et des Telephones	$3,915	$7,453	$22,359	$34,283	$47,560
France France Telecom	$3,964	$7,469	$23,152	$32,604	$47,748
Germany Deutsche Bundespost Telekom	$6,046	$9,368	$29,252	$41,042	$57,138
Ireland Telecom Ireland	$4,220	$7,600	$21,120	$29,570	$46,475
Netherlands PTT Telecom Netherlands	$4,027	$7,196	$23,198	$35,227	$48,330
Switzerland Direction Generale des PTT	$4,730*	$8,465*	$23,416*	$34,056*	$48,809*
U.K. British Telecommunications, PLC	$4,250	$7,933	$23,375	$35,133	$52,416
Mercury Communications, Ltd.	$3,400	$6,375	$18,700	$28,050	$42,500
Pacific Rim					
Australia Australian and Overseas Telecommunications Corp.	$3,938	$6,300	$19,425	$31,500	$42,675
Hong Kong Hong Kong Telecom International, Ltd.	$5,159	$7,998	$19,995	$41,279	$48,375
Japan International Digital Communications, Inc.	$6,432	$10,075	$24,800	$38,905	$58,590
International Telecom Japan, Inc.	$6,432	$10,075	$24,800	$38,905	$58,590
Kokusai Denshin Denwa Company, Ltd.	$6,510	$10,153	$24,955	$39,060	$58,823
Singapore Singapore Telecom	$5,659	$9,066	$22,537	Not available	$53,487

*Prices for fiber-optic private lines only. Lower prices offered for satellite-based private lines.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: *NETWORK WORLD*

William Klauk, Continental Grain's manager of communications operations, says the company considered locating the European hub on British Telecommunications PLC's (BT) premises in London or on France Telecom's premises in Paris. He said BT lost out because it was too expensive and, because Continental Grain's European headquarters is in Geneva, that site was chosen over Paris.

Although Klauk says the decision was tough, the competitive bidding process enabled the company to obtain an attractive deal from the Swiss PTT for facilities management and equipment collocation services.

Three years ago, this kind of bidding never occurred, according to Coopman.

But about 30% to 40% of all global net users now have multiple foreign carriers bid against each other for control of their international hubs, says Bruce Berensen, vice-president of RTT Belgian Telecom USA, the U.S. unit of the Belgian carrier, Regie des Telegraphes et des Telephones.

The criteria used when choosing an international hub site varies with the region of the world in which the hub is located.

In Western Europe, carriers in six countries — Belgium, France, Germany, the Netherlands, Switzerland and the U.K. — control the lion's share of global private net hubs.

Of those six, the U.K. dominates because of the strong presence of U.S. firms there. Another important factor is that, until recently, the U.K. offered the lowest prices for global net hubbing services.

A jump on competition

Being the first country in Western Europe to embrace competition, the U.K. got a jump start on reduced service costs. Competition commenced in the early 1980s when the British government gave Mercury Communications, Ltd. permission to compete with former monopolist BT. Mercury's strategy has since been to undercut BT's international private-line service prices by about 20%.

By the mid-1980s, the price competition between BT and Mercury resulted in the two U.K. carriers charging prices for transatlantic and intra-European private-line services that were as much as 50% lower than similar services from other European carriers, says Leonard Elfenbein, president of Lynx Technologies, Inc., an international network consultancy in Little Falls, N.J.

The U.K. carriers' low prices helped them attract international hubs away from other carriers in Europe, eventually prompting the other European carriers to strike back by cutting their prices.

Now, among carriers in Belgium, France, the Netherlands, Switzerland and the U.K., "there really are no price differences of a compelling nature," says Martin Morell, a senior telecommunications consultant at Lynx. (For comparative pricing information, see Figure 1, this page.)

Users will pay significantly more to locate a hub in Germany, Greece, Italy, Portugal or Spain because carriers there charge premium rates. However, Germany's monopoly carrier, Deutsche Bundespost (DBP) Telekom, plans to cut its international private-line rates by about 30% in July, according to officials at the carrier's New York office.

Moreover, users would have such a hard time finding high-quality, digital facilities in Greece, Italy, Portugal or Spain that they are unlikely to consider locating a major hub in those countries, according to most industry observers. This indicates that factors other than price are becoming increasingly important when choosing an international hub site in Europe.

Other criteria

Additional factors can be divided into three categories: facilities and services, flexibility and regulation.

Facilities and services can be a particularly big differentiator. For example, users can obtain fiber-optic services between the U.S. and most Western European countries, but users cannot always obtain diverse routing for fiber-optic private lines. In some countries, such as Ireland, fiber-optic private lines to the U.S. can only be backed up via satellite.

The quality of domestic infrastructure also varies dramatically among countries. In Western Europe, the six major European hubbing countries again get high marks for the quality of their domestic infrastructure. Southern European countries, particularly Greece, Italy, Portugal and Spain, are often criticized by users for having subpar domestic infrastructures.

One service that global private net users are increasingly clamoring for is equipment collocation. With these offerings, users collocate multiplexers on a carrier's premises and contract the carrier to maintain the equipment 24 hours a day, seven days a week.

Carriers in each of the six major European hubbing countries offer these equipment collocation services. They also claim to have English-speaking technicians available around the clock to respond to trouble reports and to fix outages. Telecom Ireland also claims to offer equipment collocation services for international private nets.

However, equipment collocation services can be difficult to find in other countries. For example, Lynx's Morell says his firm recently tried to obtain equipment collocation services for a client in Milan, Italy, but the services were unavailable.

Another differentiating factor between Western European carriers is the availability of very small aperture terminal services, says Russ Lisle, a senior consultant with Lynx.

Many U.S. users want to employ VSATs to provide network services to offices in Eastern Europe, Lisle explains. In addition, users also want to build pan-European VSAT nets to avoid the slow provisioning times and technical incompatibilities associated with international private-line and public packet switching services.

Yet finding shared VSAT hubs can be difficult in many Western European countries. Additionally, local regulations often restrict users from owning and operating

(continued on page 34)

International private net discounts

Figure 2

Country	PTT	Term	Volume	Custom
Western Europe				
Belgium	Regie des Telegraphes et des Telephones	3 years at 5%; 5 years at 10%	Ranges from 5% for monthly expenditures exceeding $14,500 to15% for monthly expenditures exceeding $43,500	Multiservice discounts under development
France	France Telecom	3 years at 10%; 5 years at 15%	Ranges from 10% for monthly expenditures exceeding $21,240 to 15% for monthly expenditures exceeding $53,100	None
Germany	Deutsche Bundespost Telekom	3 years at 5%; 5 years at 10%	None	Available for facilities management services
Ireland	Telecom Ireland	3 years at 5%; 5 years at 10%	Offered on a case-by-case basis	None
Netherlands	PTT Telecom Netherlands	3 years at 5%; 5 years at 10%	10% for users leasing more than 5 international private lines; 15% for users leasing more than 10 international private lines	Discounts up to 35% available on a case-by-case basis
Switzerland	Direction Generale des PTT	3 years at 5%; 5 years at 10%	None	None
U.K.	British Telecommunications PLC	2 years at 4%; 5 years at 10%	6% for annual expenditures exceeding $170,000; 12% for annual expenditures exceeding $510,000	None
	Mercury Communications, Ltd.	3 years at 5%; 5 years at 10%	None	None
Pacific Rim				
Australia	Australian and Overseas Telecommunications Corp.	Offered on a case-by-case basis	Offered on a case-by-case basis	Yes
Hong Kong	Hong Kong Telecom International, Ltd.	3 years at 5%; 5 years at 10%	Beginning in April, discounts exceeding 10% will be available for multiple circuits to the same country; discounts of 5% to 15% will be available for multiple circuits to multiple countries	None
Japan	International Digital Communications, Inc.	3 years at 5%; 5 years at 10%	Offered on a case-by-case basis	Ranges from 5% to 20%
	International Telecom Japan, Inc.	3 years at 5%; 5 years at 10%	10% for 2 or more diversely routed private lines between the same 2 locations; 40% for private lines used only as backup	None
	Kokusai Denshin Denwa Company, Ltd.	3 years at 5%; 5 years at 10%	None	None
Singapore	Singapore Telecom	3 years at 3%	Multiple discounts available	Yes

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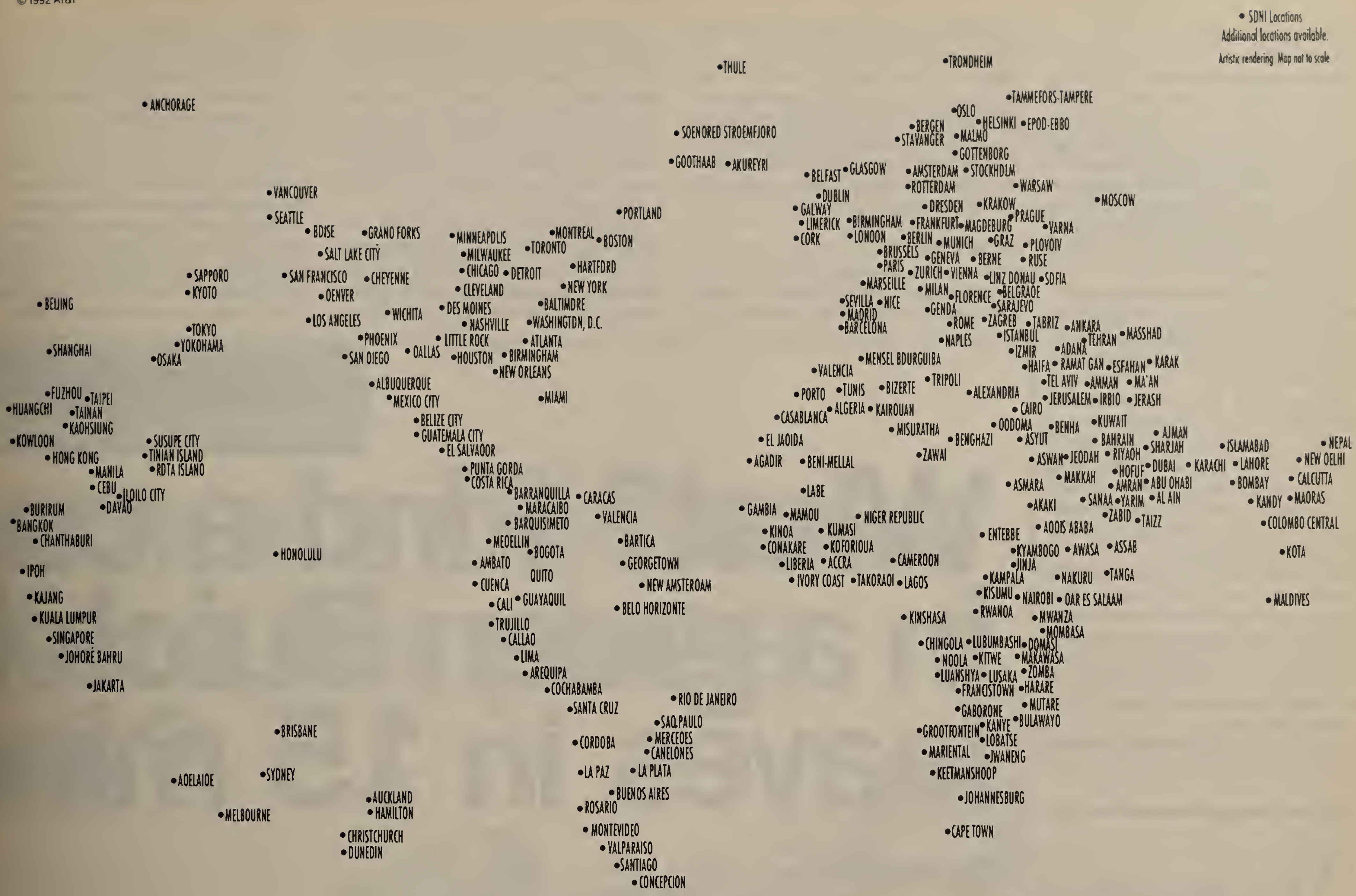

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(continued from page 32)

private VSAT hubs.

Another important factor in selecting an international hub is a carrier's flexibility. This is reflected in a carrier's willingness to offer discounts and flexible billing provisions and agreement on customized service contracts. On this front, European carriers are much less flexible than their U.S. counterparts. But in some countries, users can obtain sizable concessions (see Figure 2, page 32).

For example, Telecom Ireland and carriers in each of the six major European hub countries offer discounts ranging from 5% to 15% for contracts lasting between three and five years.

Belgium's RTT, BT and PTT Telecom Netherlands also offer discounts ranging from 5% to 15% for users that spend from $15,000 to $50,000 per month on international private-line services. Other carriers offer a wide range of discounts for users that run multiple international private lines into a single country.

In addition, DBP Telekom and PTT Telecom Netherlands claim to offer Tariff 12-style contracts. DBP Telekom claims to do this by offering discounts on equipment collocation services to large international users. PTT Telecom Netherlands will offer users custom discounts of as much as 35% on a variety of services.

Telecom Ireland will negotiate volume discounts on a case-by-case basis. Carrier officials declined to detail the concessions they offer.

Many firms want to share private-line capacity with other companies.

▲▲▲

Some carriers, such as BT, Mercury and France Telecom, will also offer rebates of as much as 30% on the monthly private-line charge in the case of extended outages.

Regulatory issues

The third factor in selecting a European international hub — regulation — comes into play with limitations on the routing of voice calls between the public and private networks. Users often prefer to let employees access an international private net from the public network, making it easier to do business between time zones.

Germany and Ireland, however, do not allow any off-net access from the public switched network to an international private net. In addition, users in Belgium, France, the Netherlands and Switzerland are allowed to access an international private network from the public net only if the call terminates at an on-net site. In these countries, it is illegal to originate a call at an off-net site, route it over an international private line and then terminate the call at an off-net site.

Many firms also want to share private-line capacity with other companies to reduce the cost of running an international network. However, in France, Ireland and the Netherlands, user companies are not allowed to share capacity on an international private line. The Belgian government allows private-line capacity sharing on a case-by-case basis. The Swiss government will allow private-line sharing after May 1, while no restrictions on private-line sharing exist in the U.K.

Pacific Rim

Many of the same issues that affect hubbing decisions in Europe should be considered when choosing a hub site in the Pacific Rim. Historically, Hong Kong, Singapore and Tokyo have been the dominant hub locations for global private nets. In recent years, however, Australia's dominant carrier, Australian and Overseas Telecommunications Corp. (AOTC), has begun working aggressively to convince U.S. companies to construct international hubs in that country.

Competition between carriers in Australia, Hong Kong, Japan and Singapore has become particularly heated over the past few years as the Pacific Rim economy booms and the number of global private nets in the region soars.

Carriers in other Pacific Rim countries — even those with large and rapidly growing economies, such as Indonesia, Malaysia, South Korea and Taiwan — can generally be ruled out as major hub service providers. Observers say this is because services are expensive in those countries and network facilities are inadequate.

Tokyo is one of the biggest hub locations because U.S. companies conduct extensive business there. Japan is also one of the few countries in the world with competition in international communications.

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Three Japanese carriers, Kokusai Denshin Denwa Company, Ltd., International Digital Communications, Inc. (IDC) and International Telecom Japan, Inc., provide international private-line and public switched telephone services to users in that country.

But analysts caution that users can find it expensive to build a hub in Japan given the high rents and top salaries required. Japanese carriers also charge 12% to 40% more for transpacific private-line services than carriers in the other three leading hub Pacific Rim countries.

Hong Kong Telecom International, Ltd. is generally believed to offer some of the most attractive prices for global net hubs in the region. However, the prospect of the British colony reverting to control of China in 1997 is creating some problems, mostly by causing a departure of skilled professionals from the country.

"Hong Kong would probably be everybody's choice [for a Pacific Rim hub] if it wasn't for 1997," says Lynx's Morell.

Singapore Telecom, the country's monopoly carrier, is trying to capitalize on Hong Kong's political uncertainty by offering tax incentives and relocation assistance to companies that move major network hubs from Hong Kong to Singapore, Morell says.

The government of Australia offers similar tax and relocation incentives to users that locate major hubs in that country. AOTC also says it will help facilitate customers' physical move to Australia.

However, the fact that Australia is so far from Asian business centers puts AOTC at a disadvantage, Morell says. It takes nine hours to fly from Sydney to Singapore and 15 hours to fly from Sydney to Tokyo.

"If your business requires you to move around the Pacific Rim, then [Australia's remote location] is a serious consideration," Morell says.

Decision factors

The selection of a Pacific Rim hub often revolves around the availability of digital and fiber-optic facilities as well as the attractiveness of the deal a carrier offers.

Fiber-optic private-line services between the U.S. and Japan and between the U.S. and Hong Kong are readily available. Singapore Telecom says it will begin offering fiber-optic private-line service to the U.S. this month, while AOTC expects to begin offering the service to the U.S. in the second quarter.

Users will not be able to route fiber-optic lines over diverse submarine fiber cables to Australia until 1994. Until that time, they will have to back up fiber-optic private lines to Australia via satellite.

AOTC, IDC and Singapore Telecom say they will negotiate custom network deals and service-level guarantees with major users.

The fierce competition between Pacific Rim carriers is good news for cost-conscious users.

Network Dynamics' Zita says that the major Pacific Rim carriers are becoming so competitive with each other that users can obtain a slew of perquisites, including network optimization studies.

Zita predicts that, by 1995, pricing and service differences between the major Pacific Rim carriers will be nominal. Users will make hubbing decisions based on other criteria, such as tax incentives, service-level guarantees and the location of their major business operations.

Central and South America

Unlike in the Pacific Rim and Western Europe, global private net hubbing is still in its infancy in Central and South America. This is because prices are high and facilities are not up to par.

Only recently have users been able to obtain digital, satellite-based private-line services between the U.S. and a handful of major Latin American countries, such as Mexico and Venezuela. Few digital private-line services are available between the countries.

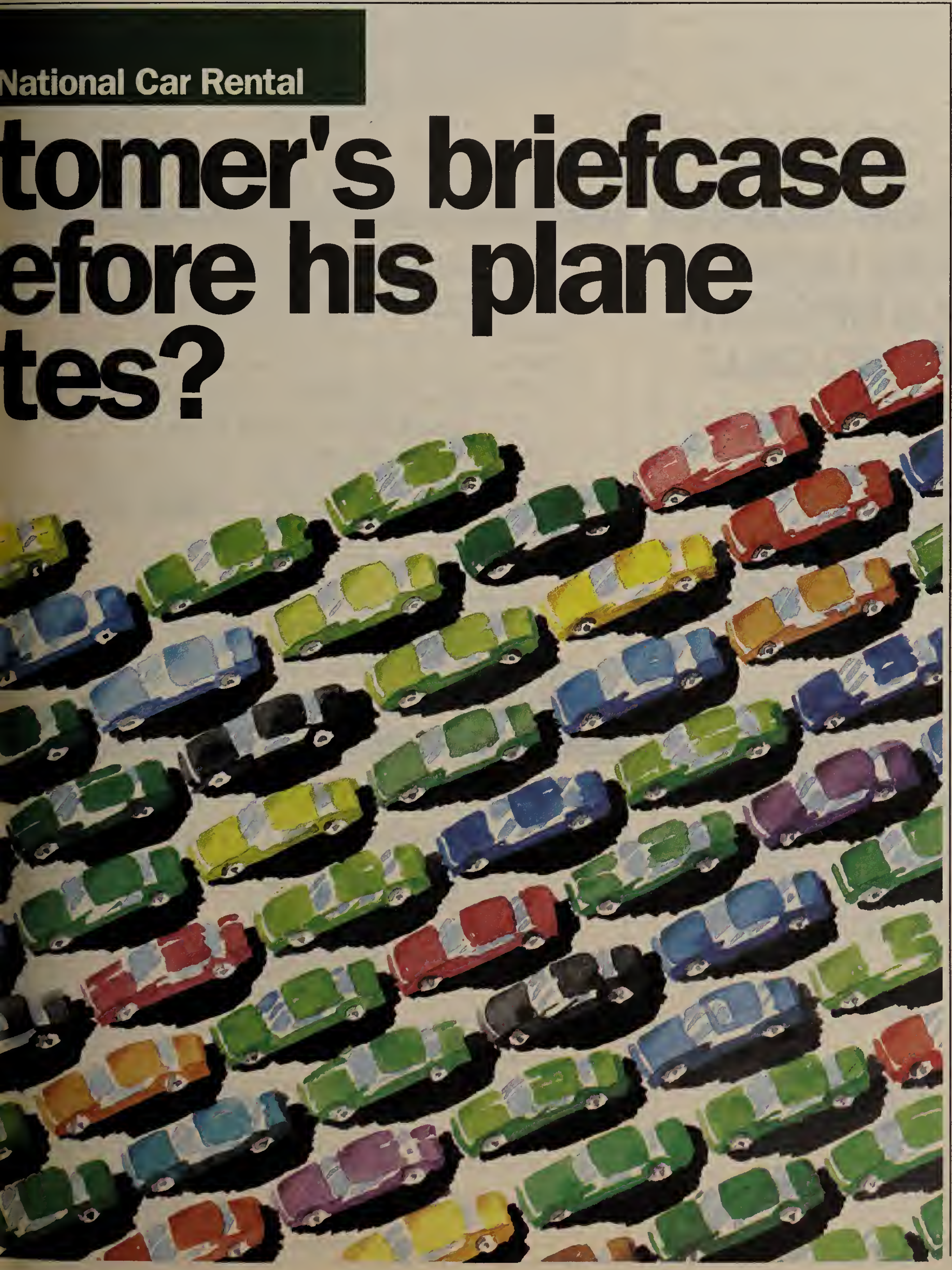
As a result, most users run point-to-point international private lines between gateways in the U.S., often in Florida, and their major Latin American offices.

Robert Rich, international telecommunications manager for Digital Equipment Corp., says his company currently relies on this setup. In the near future, DEC hopes to migrate to a mesh architecture in Latin America that will facilitate routing around outages, he says.

However, Lynx's Morell cautions that it will probably be several years before facilities in Latin America are robust enough for users to build international mesh nets or establish major hubs in that region.

Meanwhile, users such as Deere's Coopman are waiting on the sidelines to see how much users will benefit from relocating their hub.

"We'll have to wait and see if this is a short-term fad," Coopman says. "We'll have to see what the successes are, what the failures are and if the carriers live up to their claims." ☑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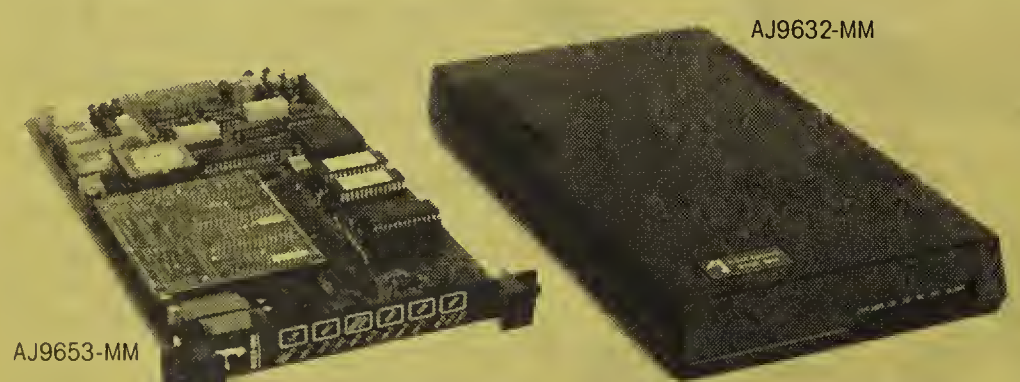

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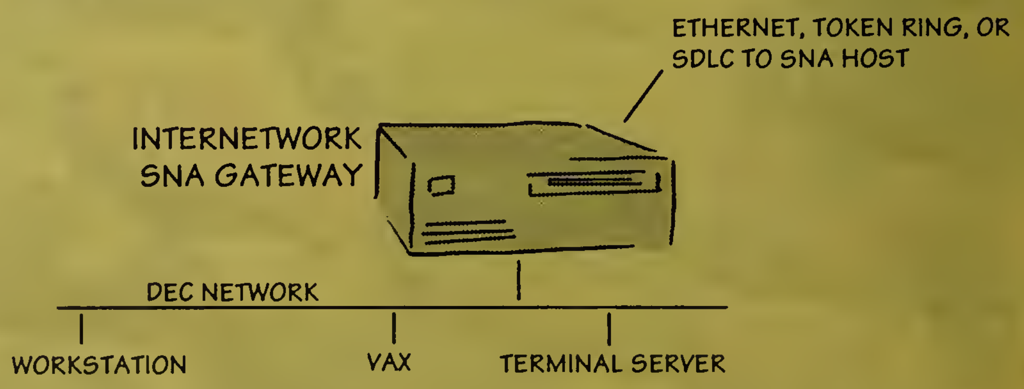

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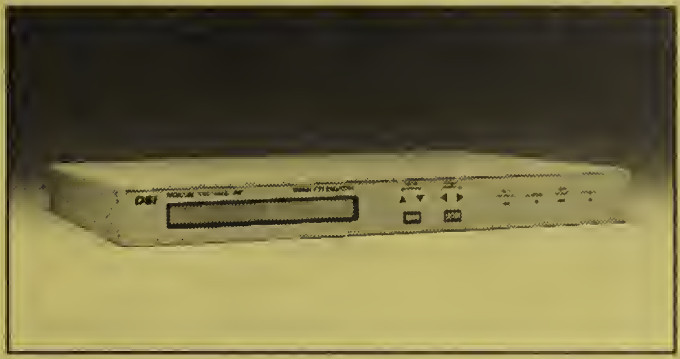

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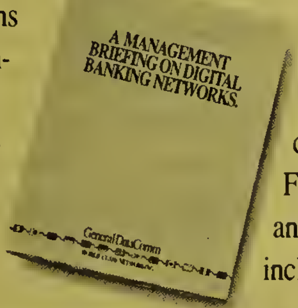

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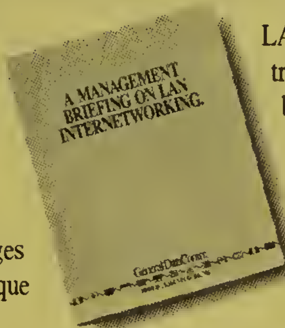

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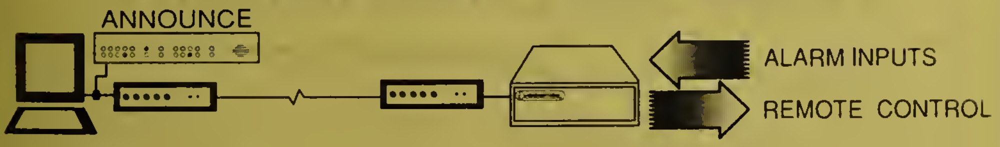

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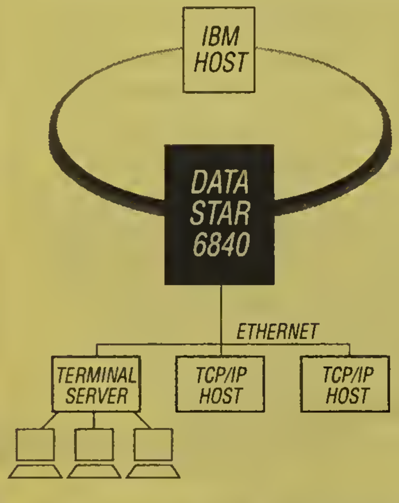

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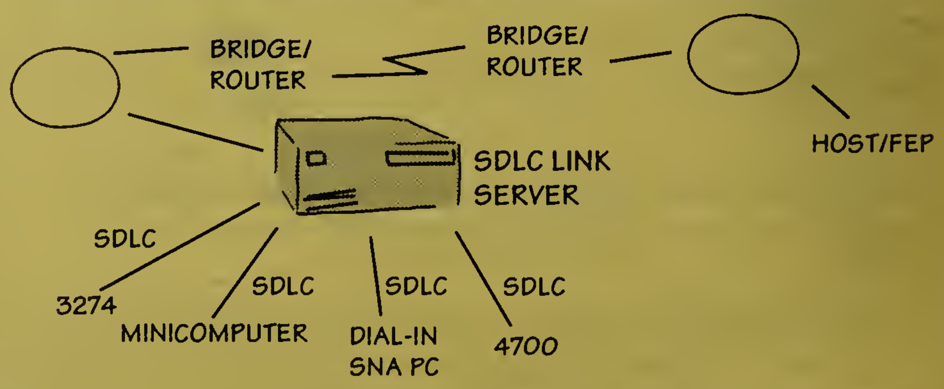

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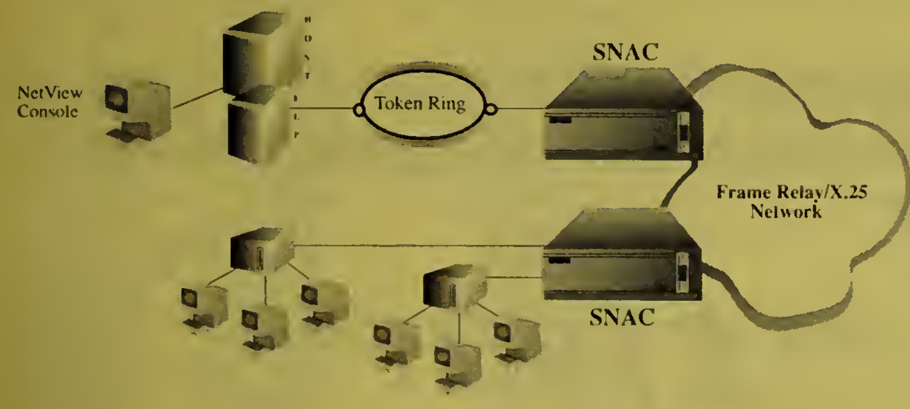

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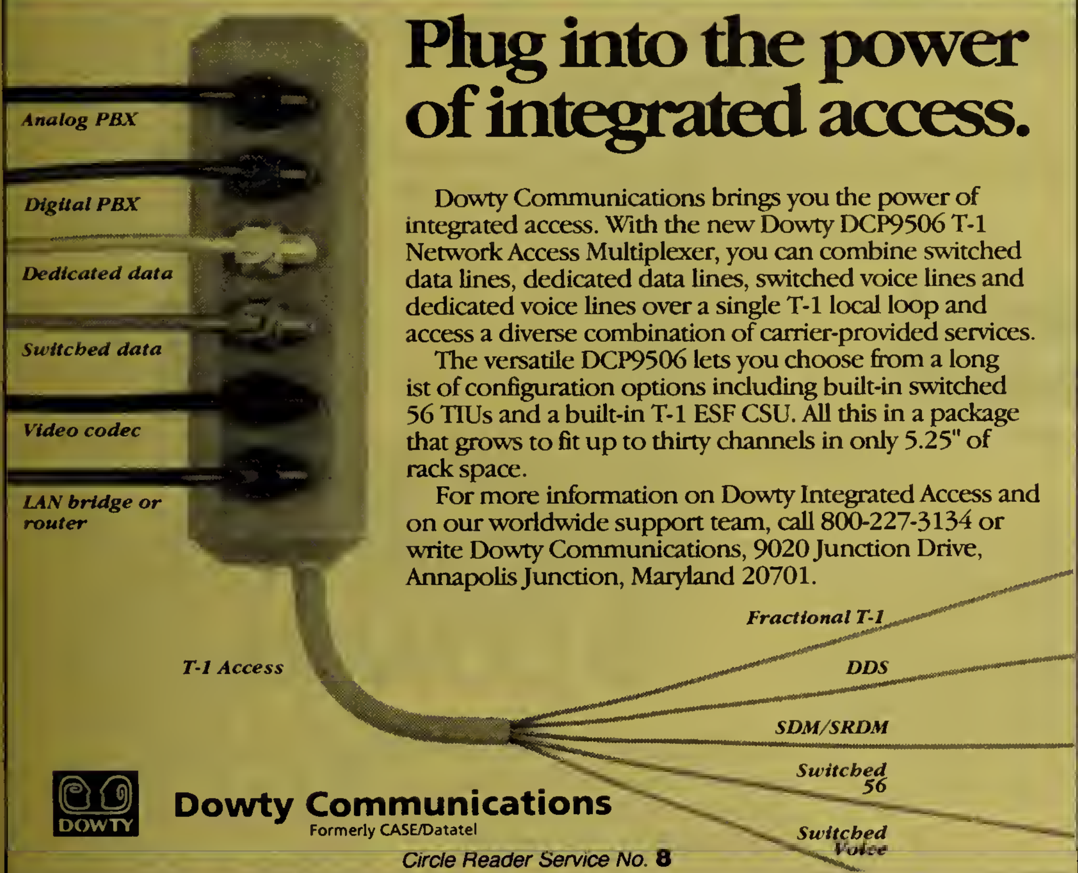

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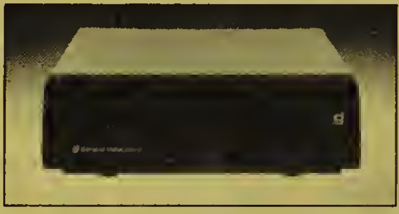

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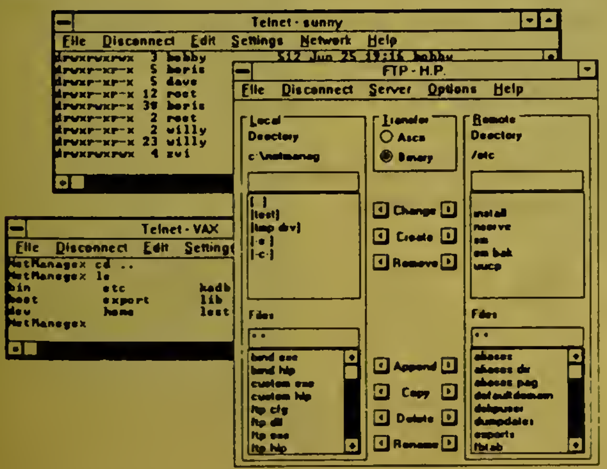

```
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drwxr-xr-x 12 root
drwxrwxr-x 39 boris
drwxr-xr-x  2 root
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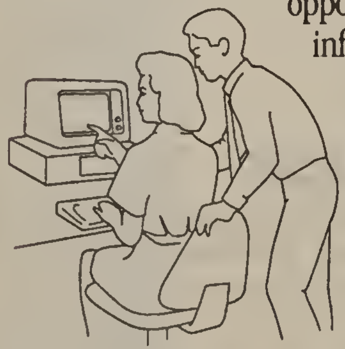

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Survey: Downsizing taking root

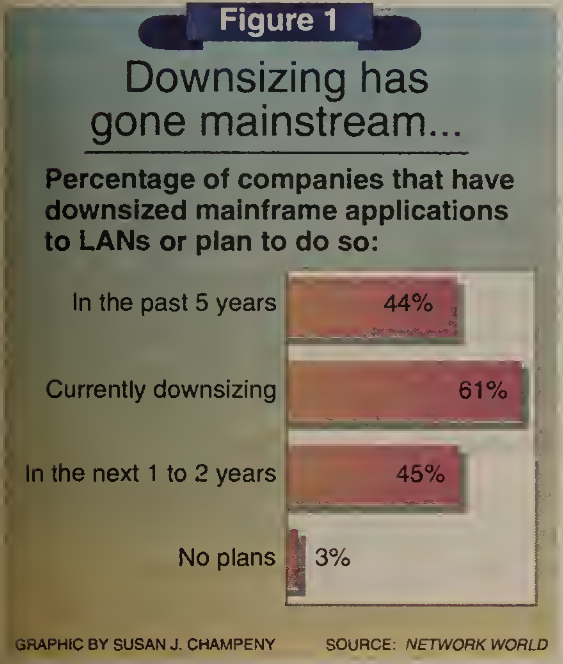
continued from page 1

ing for 20 sites.

The lure of downsizing is cost-savings, with some users reporting as much as $1.5 million in savings the first year after migrating applications to LANs, according to Ron Peri, downsizing consultant and president of Computer Support of North America, Inc. in Basking Ridge, N.J.

Figure 1

Downsizing has gone mainstream...



GRAPHIC BY SUSAN J. CHAMPENY SOURCE: *NETWORK WORLD*

The growing power of LANs, the current economic climate and the cost-cutting mood of corporate America seems to be pushing users with long-standing ties to large systems toward the concept of LAN-based computing.

Almost two-thirds (64%) of the respondents said lower operating costs are a very important or extremely important reason to downsize. Users also said downsizing helps them standardize applications across an organization and take advantage of the intelligence of desktop devices.

Moreover, firms are not just downsizing peripheral applications. An overwhelming majority (81%) categorize the applications they are downsizing as core business systems (see graphic, page 1).

More than four out of five respondents (83%) said downsized applications have performed better on LANs than they did on mainframes or minicomputers. Not a single respondent said performance of the downsized applications suffered.

Not surprisingly, this downsizing trend has caused some friction among users and suppliers.

Almost one-quarter (23%) of those surveyed said their existing application, database or computer vendor tried to discourage them from downsizing.

According to one respondent, an existing vendor tried to rally end users to get him fired, while a different vendor tried to discredit him in the company. A second respondent also claimed that an existing vendor even threatened to break off all communications with the firm.

More typically, vendors tell information systems (IS) managers that downsizing costs too much, LANs cannot match the performance of larger systems and distributed processing is unreliable and not secure.

While downsizing seems to have taken root, most users are not abandoning larger systems completely. In fact, many users (42%) continue to develop both LAN and mainframe or minicomputer applications (see Figure 2, this page).

The Travelers Corp. has about 200 LANs in its corporate network but is not planning on moving mainframe applications, especially databases, to LANs.

"We don't view LANs as replacements for mainframes. Mainframes do certain work extremely well, like processing requests on large databases," said Robin Layland, engineering consultant at The Travelers. "Moreover, we are not going to get rid of all the applications that it took 15 years to develop."

The Travelers is using its LAN internetwork to support new and enhanced insurance applications as well as office automation.

While many firms are developing mission-critical applications on LANs, downsizing is not without its problems. Some users said managing and maintaining LAN applications can be troublesome.

For example, The Travelers is still trying to address a number of problems that have slowed the rollout process for new applications on LANs, Layland said. These include how to perform data backups, maintain and manage remote applications, and distribute software.

Users are cognizant of these problems and are working to address them. For example, almost two-thirds (64%) of the survey respondents have established standards and procedures for LAN data backup, administration and management.

When asked to describe the most difficult aspect of downsizing, the majority of respondents mentioned dealing with people's attitudes and fears.

In 1989, The Rogers Group, Inc., a heavy construction company in Nashville, hired Tom Gmitter as director of information services. Shortly after arriving at the firm, he announced plans to move all applications from an IBM mainframe to more than 40 distributed Unix processors.

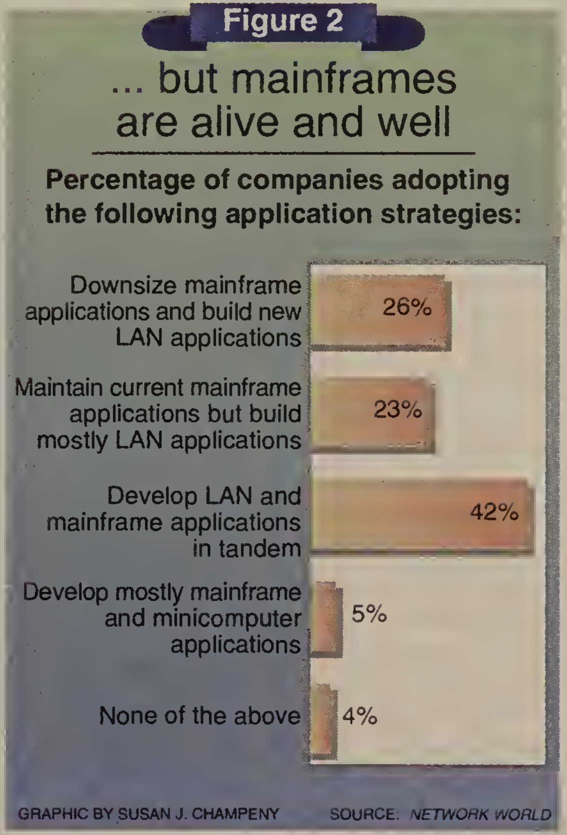
Gmitter said he met resistance from senior executives who had been told by IBM that a mainframe-based architecture best suited their company's information needs. He said the executives were skeptical about his downsizing proposal but endorsed it once they realized it could add $1 million to the budget's bottom line and streamline operations.

IS staffers at The Rogers Group were also resistant, fearing they would lose their jobs or would not be able to make the transition. To ease their fears, Gmitter provided the staff with extensive training in distributed processing techniques and gave them responsibility for making critical decisions on the hardware and software to be used.

"People are much more committed to something that they have helped make happen than something they have been ordered to do," he said.

Figure 2

... but mainframes are alive and well



GRAPHIC BY SUSAN J. CHAMPENY SOURCE: *NETWORK WORLD*

Bells doubtful on deadline

continued from page 3

portable 800 numbers.

Part of the difficulty of supporting 800 portability with reasonable performance levels is that Common Channel Signaling System 7 (CCS7) is required. The RBHCs, however, have vastly different plans for installing CCS7.

The FCC wants to make sure that CCS7 is available widely enough in local carriers' networks so that they can support 800 portability with reasonable levels of service quality.

The FCC's order requires carriers to be able to do lookups for 97% of their 800 traffic by 1993, with no more than five seconds of postdial delay. By 1995, all carrier traffic must fall within the five-second delay time frame.

Although the carriers projected being able to meet the FCC requirements for some of their 800 traffic, they indicated they will fall shy of the 97% traffic level.

BellSouth will come closest to meeting the 1993 requirements, saying in its filing last week that 93% of its traffic will fall within the five-second delay. Nynex was close behind, planning to accommodate 92% of its traffic. US West, Inc. is the furthest off the FCC mark, with only 64% of its traffic projected to fall within the five-second delay by 1993.

Carriers such as Ameritech, which projects that only 74% of its traffic will comply with the FCC requirements in 1993, said vendors are currently working on switch and software upgrades that may help increase the amount of 800 traffic that falls within the FCC mandate.

Letters

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there isn't enough traffic on the networks to make congestion control worth the worry.

However, for some networks, congestion control implementation will become a relevant feature in the future.

The proper context will not be standards-compliance, but rather the impact that congestion will have on the performance of the network.

In a worldwide, multinode, multimedia corporate network, congestion control and its implementation will be key.

Choosing frame relay equipment isn't any different than making other network choices. Users first have to define their network needs and then evaluate vendors in light of those needs.

Mark Luczak
Senior network specialist
Gandalf Systems Corp.
Cherry Hill, N.J.

Firm readies new ILAN gear

continued from page 4

ets to be bridged or routed more quickly. It reviews each packet that traverses the ILAN to compile information about the network and to help the packet engine route the data most efficiently.

"When you connect LANs over wide-area networks, it's difficult to measure bandwidth utilization and traffic patterns because there aren't many tools available," said Rosemary Cochran, a principal at Dedham, Mass.-based Vertical Systems Group. "CrossComm's new directory is a powerful feature that not only provides more management information, but improves routing."

CrossComm said it will add a protocol analyzer to the ILAN by the end of the year to provide users with more advanced network diagnostic capabilities.

Easier and less costly

In addition, CrossComm has divided the ILAN software, under its new architecture, into five modular applications that will be easier and less costly to upgrade. The modules support bridging, routing, SNA routing, network management and local-area network and WAN interface functions.

CrossComm will also announce ILAN support for such network protocols as Novell, Inc.'s Internetwork Packet Exchange (IPX), TCP/IP and Apple Computer, Inc.'s AppleTalk.

IPX support will be available next month. TCP/IP and AppleTalk support will be available by year end.

ILAN bridge/routers incorporating the new Universal Router Architecture are available now. Pricing ranges from $6,000 to $13,000.

Users with existing ILAN bridge/routers can upgrade by installing the Address Processor & Directory engine and modular Feature Pack.

Apple lays out System 7 future

continued from page 1

"Apple has to be a good citizen on the corporate network, and that ain't [possible with] AppleTalk," said William Bluestein, senior analyst for Forrester Research, Inc., a Cambridge, Mass.-based research and consulting firm.

"Corporations like the Mac but find that once you get out of the AppleTalk environment, you're stranded," he added.

That is where the Enterprise Toolbox comes in. Apple said it will develop systems-level en-

(continued on page 46)

Int'l spectrum decisions made

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For the U.S., the big win was in gaining allocations for low bit rate, data-only services provided from LEOSs operating below 1 GHz, called Little LEOSs, and spectrum for Big LEOSs, high-capacity voice and data systems that operate at frequencies above 1 GHz.

The U.S. victory on Big LEOSs was cheered by Motorola, Inc., which wants to build Iridium, a 77-satellite LEOS network to supply voice and data services worldwide. Motorola still needs to put together an investment consortium and obtain government licenses in order to operate, but the Big LEOS allocation gives new life to the network.

According to William Borman, Motorola's vice-president in charge of spectrum management and a WARC delegate, the earliest Iridium will be launched is 1996.

PCN advances

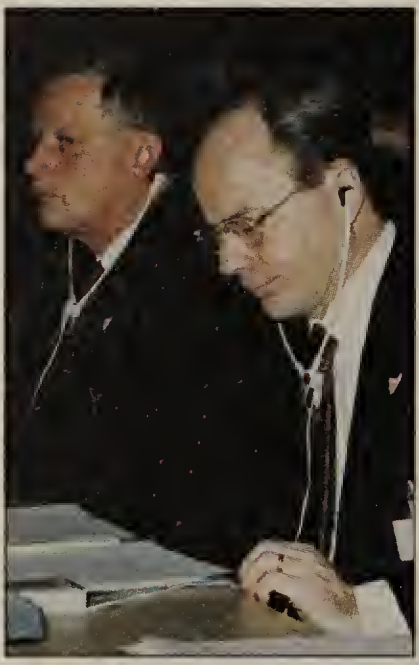
Of the PCNs that were adopted, the Europeans won spectrum allocation for PCNs worldwide in the 1885- to 2025-MHz range, which was their priority at WARC. The conference delegates approved a resolution in which PCN systems will be phased in over a 27-year period, beginning in the year 2000.

Michael Goddard, head of the British delegation and head of the International Branch Radiocommunications Agency in London, said European implementation of PCNs was not expected until the year 2000, but having an allocation will make it possible for the industry to move ahead on design and planning.

Adopted at WARC was a resolution inviting technical bodies of the International Telecommunication Union (ITU), the United Nations body that sponsored the conference, to prepare technical, legal and operational studies for both LEOSs and PCNs.

In addition, the ITU's technical group, the Consultative Committee on International Telephony and Telegraphy, was urged to develop a common numbering scheme for global roaming that would permit users with handheld phones to use them anywhere in the world, communicating through either terrestrial- or satellite-based systems.

As a result of WARC decisions, radio frequencies used by existing networks will have to be reallocated. Pekka Tarjanne, secretary-general of the ITU, said it was almost impossible to estimate the cost of displacement, but whenever telecommunications systems are discussed, "the smallest unit one can think of in terms of cost runs into the billions of dollars."



Frank Urbany (l.) and Jan Baran at the recent WARC meeting.

Because the U.S. has not made a decision to implement PCNs, it did not have a PCN proposal at the meeting. But the radio bands to be set aside line up fairly well with an emerging technologies band currently under consideration by the Federal Communications Commission ("FCC to demote microwave users to second-class status," *NW*, Jan. 20).

Despite the dominant voting blocs of the European and Third World groups at the conference, the U.S. was apparently able to achieve its objectives by having its large delegation deeply involved in every issue.

But everyone at WARC agreed that it was Morocco's chief delegate, Abderrazak Berrada, a former ITU official, who played the key role in breaking logjams and bringing the Third World — suspicious that they would not benefit from the technology — to back LEOSs in the end. ◪

New CICS targets applications

continued from page 4

CICS applications.

The DPL capability with CICS/ESA will support the reverse, allowing mainframe-based CICS applications to transparently access CICS-based applications on an OS/2 machine.

The DPL capability will also be incorporated in an AS/400 version of CICS that is expected in 1993. IBM plans to deliver a version of CICS for AIX that will have DPL.

Atul Kapoor, principal at Kaptronix, Inc., a consultancy in Haworth, N.J., said IBM is distributing CICS to multiple platforms to let IBM users deploy a common teleprocessing monitor platform across a network.

Kapoor said many mainframe users want to deploy CICS on more familiar microcomputers and minicomputers.

Weis said the most important new feature in CICS/ESA Version 3 Release 3 is a new Subsystem Storage Protection function that will improve the reliability of networks and transaction processing applications by making it harder to crash CICS.

The new feature ensures that an application does not inadvertently consume memory that CICS needs to perform its own functions.

CICS/ESA Version 3 Release 3 is scheduled to be available by March 27. Basic onetime license charges range from $78,300 to $675,300, while basic monthly license fees range from $1,450 to $12,500. ◪

Users thwart latest virus

continued from page 4

tection as part of a larger network security plan," he said. Such a plan would include ways to prevent unauthorized access to networks as well as preventing hacker intrusion. In addition, a network security plan should also address disaster recovery, which includes recovery not just from damage done by viruses but from any type of disaster.

Larger plans needed

These ideas are not new. "Mainframe environments have had this type of protection for years," Bales said. "What is new is that these security plans must be used for LANs, especially since the data on LANs is becoming so valuable to companies."

The problem is that many users have yet to formulate such all-encompassing security plans. "If virus control is going to be part of an effective distributed net security policy and system, you've got to first have the policy and system," said John Reimer, an analyst at Patricia Seybold's Office Computing Group in Boston. "And most organizations haven't gotten that far yet."

One user, who requested anonymity, agreed. "We don't have a formal security plan. If I find out about a bug, I try to investigate it to see if I'm prepared for it," the user said. "If not, I tell my boss, who is holding the purse strings. I make my recommendation and we go from there. Usually, I end up stealing the [protection] software from someone else."

Until a formal policy is put in place, what alternatives do users have? According to Leo Hedges, information system security manager at Fort Eustis, education is the key. "We've been educating people [about viruses] for the last two weeks intensively," he said. "But I can only give out the information and hope people use it."

> "If I find out about a bug, I try to investigate it to see if I'm prepared for it."
>
> ▲▲▲

Hedges said the base is using an antivirus software package and, as a safeguard, will be changing the internal clocks on all of its personal computers to avoid the well-known virus dates. ◪

AT&T ready to announce plans

continued from page 2

full range of private-line data and packet-switched services under a one-stop shopping arrangement.

Analysts see EuroNet's debut coinciding with the recent liberalization of European regulatory restrictions that have loosened the local PTTs' stranglehold on the provision of data services.

"Given that AT&T has global ambitions, they have to construct a facilities-based international network," said Ken Zita, a principal at Network Dynamics, a New York-based consulting firm.

He said AT&T will face competition from Syncordia Corp. — British Telecommunications PLC's global net outsourcing unit launched last fall — and Cable & Wireless PLC, which indicated it will soon enter the trans-European private net market.

AT&T is expected to announce its first major customer for the network at the CeBIT show but declined to comment further.

But users had mixed feelings about EuroNet. "If AT&T can offer us high service quality at a reasonable price, we'd be interested in what they have to sell," said Jack Haverty, a net planner with Oracle Corp., a database systems vendor in Belmont, Calif. "But I'm not sure putting up this network and competing with the PTTs is a smart move politically" because customers will fear upsetting the PTTs.

Users said they were surprised AT&T waited so long to make a major push for private nets in Europe. "They've been on the sidelines for too long," Haverty said. An earlier entry into the market would have guaranteed the carrier faster acceptance, he added. ◪

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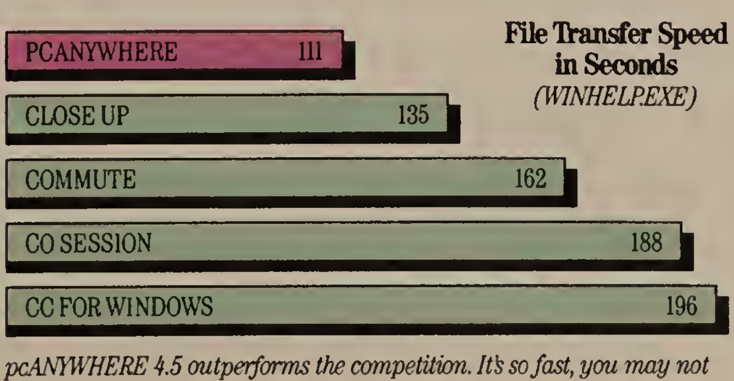

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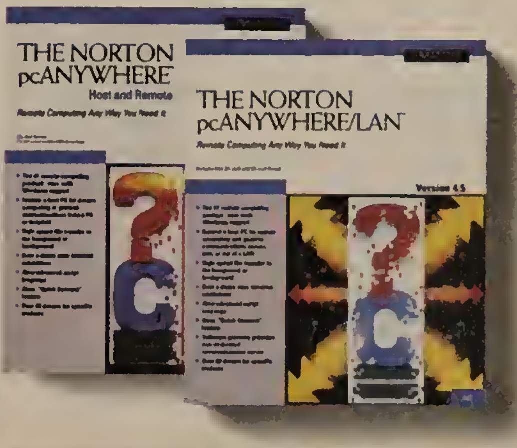

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Apple lays out System 7 future

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hancements that make it possible for "one application to use the AppleTalk stack with its directory services to communicate locally, while another is using a TCP/IP stack with [Distributed Name Service] or an OSI stack with X.500 to send messages over a backbone," Torres said.

According to Dana Harrison, product line manager for AppleTalk, the Enterprise Toolbox would take care of dynamically loading the protocols and linking them to programs.

Developers will be able to call on the Enterprise Toolbox's range of protocols using the XOpen Transport Independent application program interface (API), Harrison said. The first release, which will follow the initial release of OCE, is likely to offer AppleTalk and the Transmission Control Protocol/Internet Protocol, with other protocols scheduled later.

OCE works at a higher level than Enterprise Toolbox. Its snap-on system extensions and standard API give application developers services in five areas: store and forward, directory, encryption, authentication and digital signatures.

With OCE, Apple hopes to foster a new class of applications and integrate them more closely with the Macintosh desktop using two new standard desktop icons — a personal directory and a mailbox.

Under OCE, SEND becomes a standard menu choice, just as PRINT is now. Through an OCE-compliant application, users will be able to send any file to any user by simply attaching a mail form. All forwarded documents show up in the OCE mailbox, which displays them like any other folder on the Macintosh desktop.

OCE's personal directory will let users hold a selection of addresses from the directories available on an OCE server, as well as add their own. OCE services will work with or without a dedicated server.

Macintosh users now locate and connect to resources such as file servers, printers and shared modems one at a time through the Chooser. OCE's personal directory will replace the Chooser device in the future and offer access to those traditional services as well as any other resource on the net, including directories.

On the back end, OCE will let local-area network vendors plug their own wares into the Macintosh operating system by writing modules that conform to OCE's services API. Together, OCE and the Enterprise Toolbox will let Macintosh users choose their own mix of network services, connections and applications.

Novell, Inc. is currently working with Apple to meld its NetWare services with OCE. The company last week demonstrated a gateway between OCE's store-and-forward engine and its own Message Handling Service (MHS) engine but said the gateway is not its final solution.

Apple also said the OCE Enterprise Toolbox will be ported to other platforms, such as Windows, and will support the recently ratified Vendor Independent Messaging (VIM) API as well as its own API on all platforms.

At the highest level, Macintoshes will be able to cobble together their own custom net-aware applications using Apple's systems-level scripting services, which were also shown here for the first time.

AppleScript will let users automate day-to-day tasks using an English-like scripting language. Apple Events, the Macintosh's method for communicating between applications, will enable scripts to launch applications on remote computers and send data to and retrieve the results from those Macintoshes.

The first OCE services will be available near the end of this year or the beginning of next year. The Enterprise Toolbox will follow sometime after that, Torres said. ◻

Big Blue preps mainframe version

continued from page 2

network node licensing strategy here but declined to provide more details.

According to industry sources, IBM plans to announce VTAM Version 4, which will allow for APPN support on IBM mainframes, and a new release of its Network Control Program that works with the new VTAM to support APPN on IBM's front-end processors ("IBM lays out APPN plan for mainframes," *NW,* Feb. 3). Pricing and availability were not available.

Meanwhile, the licensing of APPN network node source code to other vendors promises to result in the availability of more devices capable of routing SNA traffic.

"One of the big problems in routing today is that users cannot route SNA traffic across their multiprotocol networks," said Atul Kapoor, a principal at Kaptronix, Inc., a Haworth, N.J., consulting firm. "Router vendors let users encapsulate [Synchronous Data Link Control] traffic, but SDLC pass-through is not the same as routing

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SNA. The products being announced and resulting from the announcements will let users route SNA traffic."

Observers said that IBM will probably not publish the APPN network-node specification as it did the end-node specification.

It is more likely that IBM will make source code software available to third-party developers, said Ken Krechmer, a principal at Action Consulting, a Palo Alto, Calif., consulting firm. This will have the dual effect of giving IBM control over which vendors have access to the APPN network node specification and making it easier for vendors that license the specification to bring products to market faster, he said.

Industry observers said IBM's announcement could be the biggest network news to come out of Big Blue this year.

"This is a very big deal," said Dixon Doll, chairman of the consultancy DMW Group, Inc. and general partner of Accel Partners, a venture capital firm. "This will reduce the administration complexity of operating SNA networks."

Several vendors may join IBM on the podium at its APPN announcement to discuss their plans to license the network-node specification, analysts said. Router vendors are likely to participate.

Cisco Systems, Inc., Novell, Inc. and Proteon, Inc. are among the vendors that said they have plans to support the network-node specification.

Novell also was among a handful of vendors that a year ago pledged to support IBM's APPN end-node specification. None of those vendors have yet delivered products supporting that specification.

IBM's issuing of source code for the network-node specification may be an acknowledgment that simply publishing the end-node specification proved to be an ineffective way of promoting APPN, observers said. ◘

DEC preps version of net mgmt. system

continued from page 4

OpenView for inclusion in its Distributed Management Environment.

While the ability to deploy the product on non-DEC platforms could increase the market appeal of DECmcc Director, the key to Version 1.2 is the expanded Transmission Control Protocol/Internet Protocol and Simple Network Management Protocol support.

"They're certainly making enhancements to [DECmcc Director] that were sorely needed, especially in more robust SNMP support," said a user at E.I. du Pont de Nemours & Co., Wilmington, Del., who requested anonymity. "This is the real release of SNMP," the user added, referring to SNMP limitations in DECmcc Director Version 1.1.

Among the features of Version 1.2 will be a new alarm windowing capability that provides additional detail in alarms.

The new version will have a data collector module that allows DECmcc Director to receive additional network event information from DECnet and TCP/IP devices. It supports the TCP/IP packet internet groper (PING) management protocol, which polls TCP/IP devices to determine, for example, whether they are on-line.

DECmcc Director Version 1.2 is included in every DECnet software license. ◘

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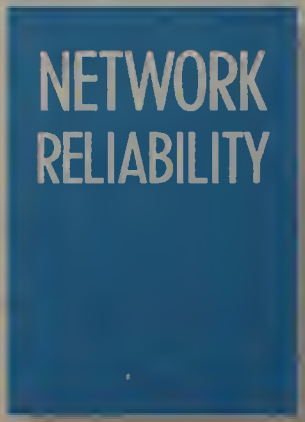

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